

**STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY ENGINEERING
ROADWAY DESIGN SECTION**

OCTOBER



2004

***CONSTRUCTION
STANDARD DRAWINGS***



Arizona Department of Transportation

Intermodal Transportation Division Roadway Group

MEMORANDUM

To: All Users of the Roadway Construction Standard Drawings

Date: 20 Oct 04

From: Mary Viparina
Assistant State Engineer
Roadway Engineering Group

Subject: C-Standards Update

The Roadway Construction Standard Drawings have been revised and updated, and printed in a new, complete set. Users should obtain the new Construction Standard Drawings (October 2004 cover) from Engineering Records. Numerous revisions, additions, and deletions have occurred that are listed in the front of the new standards. Some of the significant changes include the following:

1. Removal of the Superelevation Distribution sheet, C-02.50, which is now found in the Roadway Design Guidelines;
2. Update of the Sidewalk Ramp sheets, C-05.30, to reflect current ADA guidelines;
3. Reorganization of the PCCP Joint series (C-07.xx), and addition of parallel entrance and exit ramp joint location sheets;
4. Reorganization of the Guardrail and Barrier series (C-10.xx), including the update of the Thrie Beam to Concrete Half-Barrier Transition, C-10.30 and C-10.31, and deletion of C-10.68;
5. Removal of the cage reinforcement from the half barrier adjacent to slotted drains and catch basins (C-15.92) to facilitate slip forming;
6. Reorganization of the Rail Bank series (C-17.xx), and inclusion of a Rail Bank Protection at Abutments standard drawing;
7. Consolidation of the C-18.xx series into one standard, Manhole, C-18.10;
8. Redesign of the Standard Marker, C-21.20;
9. Deletion of the Utilities series (C-22.xx and C-23.xx). These series were adopted from the Maricopa Association of Government (MAG) standards and hadn't been updated in over a decade. Designers can use the current MAG utility standards, or convert the deleted sheets into plan details, which must be sealed and signed. The deleted sheets can be found at the web address listed below; and
10. Development of special provisions for use in conjunction with many of the standard drawing. These special provisions are on the Roadway Design web site with links from and to the applicable drawings.

Design personnel should implement the updated drawings and incorporate the updates into their project plans. For projects at or near completion, where the inclusion of all new standard drawings is not practical, the 1A Sheet must accurately reflect the correct revision dates for the design. Construction personnel should review the drawing revisions for possible implementation on construction projects.

Please arrange for additional copies of the updated Standard Drawings for all users within your Group or District. Additional copies (8-1/2" x 11" or 11" x 17") may be obtained from Engineering Records located at 1655 West Jackson, Room 175, Phoenix, AZ 85007-3217 or by telephoning 602-712-8216.

An updated List of Standards (1A Sheet) is available either from the Roadway Support Desk (602-712-8667 or 602-712-8491) or on-line at the following address:

http://www.dot.state.az.us/ROADS/Rdwyeng/updates/viewable_drawings.html



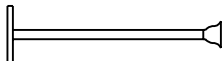



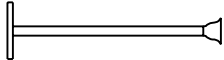
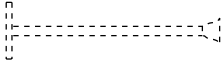


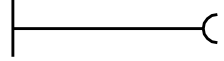
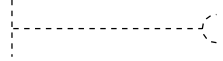

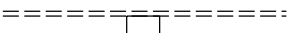
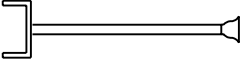
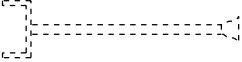


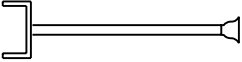

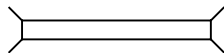
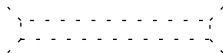
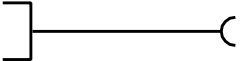
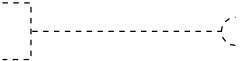
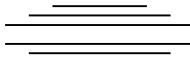

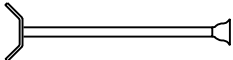
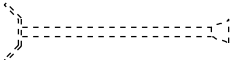
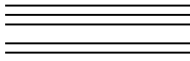
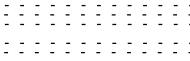
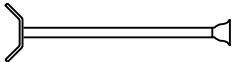
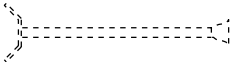
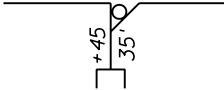
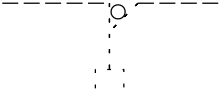
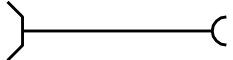


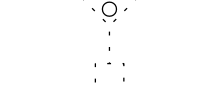
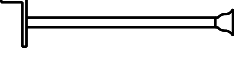
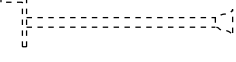


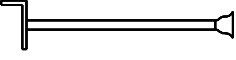
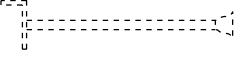


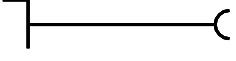
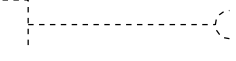


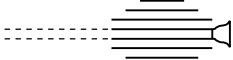


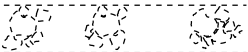
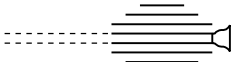

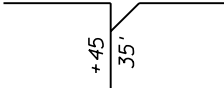

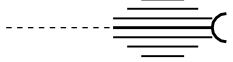

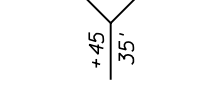

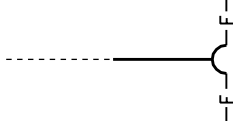


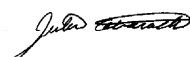
Updated Summary Sheets are available on-line at the address shown above.

Please direct questions regarding this memo or the updated standards to Kenneth Cooper, Roadway Standards Engineer at 602-712-8674.

MAV/KRC/krc

cc:	Roadway Engineering Group	Regional Traffic Engineers (4)
	Traffic Group	Materials Group
	Valley Project Management Group	Local Government Section
	Enhancement and Environmental Group	Engineering Consultant Services
	Districts (10)	District Permits Office (9)
	Statewide Project Management Group	Engineering Records
	FHWA	Michael Ortega
	Contracts and Specifications Section	Dan Lance
	Construction Group	Sam Maroufkhani
	Bridge Group	Doug Forstie
	Central Maintenance Group	John Louis

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-01.11 TO C-01.10, SHEET 2 OF 4	RLF	9/04
2			
3			
4			

	CONSTRUCTION DRAWING SYMBOLS			CONSTRUCTION DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES		NEW FEATURES	EXISTING FEATURES
Catch Basin, Curb & Gutter -----			Straight Hdwl w/End Sct, Pipe (I"=20') (All Dia)-----		
Catch Basin, Median Dike -----			Straight Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger)		
Catch Basin, Off Roadway, Flush -----			Straight Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)		
Catch Basin, Single Curb -----			"U" Hdwl w/End Sct, Pipe (I"=20') (All Dia) -----		
Cattle Guard -----			"U" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger) -----		
Concrete Box Culvert -----			"U" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)-----		
Dike, Median -----			Wing Hdwl w/End Sct, Pipe (I"=20') (All Dia) -----		
Dike -----			Wing Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger) -----		
Downdrain, one way -----			Wing Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)-----		
Downdrain, two way -----			"L" Hdwl w/End Sct, Pipe (I"=20') (All Dia) -----		
Manhole -----			"L" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger) -----		
Manhole, Frame & Cover, Reset -----			"L" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)-----		
Retaining Wall -----			Pipe Ext W/End Sct & Berm (I"=20') (All Dia) -----		
Rock Riprap -----			Pipe Ext W/End Sct & Berm (I"=20') (I"=50' or smaller) (Dia=42" and larger)		
Spillway, one way -----			Pipe Ext W/End Sct & Berm (I"=20') (I"=50' or smaller) (Dia=36" and smaller)		
Spillway, two way -----			Pipe Ext W/End Sct Roadway Widening (I"=20')-----		
			APPROVED FOR DESIGN 		
			STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		
			REV. 9/04		
			APPROVED FOR DISTRIBUTION 		
			DRAWING NO. C-01.10 Sheet 2 of 4		
			SYMBOL LEGEND		

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-01.13 TO C-01.10, SHEET 4 OF 4	RLF	9/04
2			
3			
4			

	CONSTRUCTION DRAWING SYMBOLS			CONSTRUCTION DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES		NEW FEATURES	EXISTING FEATURES
Water Line			Depressed Index Contour Line		
Drainage Channel			Depressed Intermediate Contour Line		
Drainage Ditch			Block Wall (1"=20')		
Major Wash			Median Barrier		
Minor Wash			Fire Hydrant		
℄ Grade, Profile			Standpipe		
Hedge			Transmission Tower		
Palm Tree			Windmill		
Shrubbery			Mail Box		
Unclassified Tree			Flag Pole		
Sign, Single Post					
Sign, Multiple Post			North Arrow		
Dimensions					
Visible Outlines, Sections, etc...					
Index Contour Line					
Intermediate Contour Line					

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
①	RENAMED STD DWG FROM C-01.30 TO C-01.30, SHEET 1 OF 3	RLF	9/04
②			
③			
④			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
A		B (cont)		C (cont)	
Abutment	Abt	Bituminous Mixture	Bit Mix	Corrugated High Density Polyethylene Plastic Pipe	CHDPEPP
Acceleration	Acc	Bituminous Surface Treatment	BST	Corrugated Metal Pipe	CMP
Acres	Ac	Bituminous Treated Base	BTB	Corrugated Steel Pipe	CSP
Aggregate	Agg	Black Steel Pipe	BSP	County	Co
Aggregate Base	AB	Borrow	Bor	Crossing	X-ING
Ahead	AHD, Ahd	Boulevard	BLVD, Blvd	Cross Section	X-SECT
Alternate	Alt	Boundary	Bdry	Crown	Cr
Aluminum	Al	Brass Cap	BC	Cubic	Cu
American Association of State Highway and Transportation Officials	AASHTO	Breakaway Cable Terminal	BCT	Cubic Feet Per Second	CFS
American Concrete Institute	ACI	Bridge	Br	Cubic Yard or Cubic Yards	CY, Cu Yd
American Institute of Steel Construction	AISC	Building	Bldg	Culvert	Culv
American Road and Transportation Builders Association	ARTBA	C		Curb and Gutter, Curb & Gutter	C&G
American Society for Testing Materials	ASTM	Calculated	Calc	Curve to Spiral	CS
Amount	Amt	Cast-In-Place	C-I-P	D	
Approach	Appr	Cast Iron	CI	Deceleration	Dcl
Approximate	Approx	Cast Iron Pipe	CIP	Deflection	Def
Asphalt	Asph	Catch Basin	CB	Deflection of Total Curve	I
Asphalt Rubber	AR	Cattle Guard	CG	Degree of Curve	D
Asphalt Rubber ACFC	ARACFC	Cement	Cem	Delineator	Del
Asphaltic Concrete	AC	Cement Treated Base	CTB	Delta	Δ
Asphaltic Concrete Base	ABC	Center	Ctr	Depressed Curb	DC
Asphaltic Concrete Friction Course	ACFC	Center Line	℄	Design Speed	Des Spd
Asphaltic Concrete Surface Course	ACSC	Center to Center	C to C	Detail	Dtl
Avenue	AVE, Ave	Channel	Chan	Diameter	Dia
Average Daily Traffic	ADT	Class	Cl	Distance	Dist
B		Clear	Clr	Division	Div
Back	BK, Bk	Column	Col	Double	DbI
Backfill	Bkfl	Compact or Compaction	Comp	Drain or Drainage	Drn
Balance	Bal	Complete In Place	C in P	Drainage Area	DA
Bank Protection	BP, Bank Prt	Concrete	Conc	Drawing	Dwg
Barbed Wire	BW	Concrete Box Culvert	CBC	Drive	Dr
Bearing	Brg	Concrete Treated Base	CTB	Driveway	Dwy
Begin	Bgn	Connection	Conn	Ductile Iron Pipe	DIP
Begin Curb Return	BCR	Conduit	Cond	E	
Begin Full Super	BFS	Construct or Construction	Cst	Each	Ea
Bench Mark	BM	Continuous	Cont	Easement	Esmt
Bevel or Beveled	Bev	Coordinate	Coord	East	E
Bituminous	Bit	Corner	Cor	Eastbound	EB
		Correction	Corr		
		Corrugated Aluminum Pipe	CAP		

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Mary Viparina

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Julia [Signature]

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

GENERAL ABBREVIATIONS

REV.
9/04

DRAWING NO.
C-01.30
Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG C-01.31 TO C-01.30, SHEET 2 OF 3	RLF	9/04
2			
3			
4			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
E (cont)		G (cont)		M (cont)	
Edge of Pavement	EP	Ground	Gnd	Mile or Miles	MI
Electric, Electricity	Elec, E	Ground Compaction	Gnd Comp	Mile Post	MP
Elevation	Elev	Grubbing	Grb	Miles Per Hour	MPH
Embankment	Emb	Guard	Grd	Mineral Aggregate	MA
End Curb Return	ECR	Guardrail	GR	Minimum	Min
End Full Superelevation	EFS	Guardrail Extruder Terminal	GET	Miscellaneous	Misc
Engineer	Engr	H		Modify or Modified	Mod
Entrance	Ent	Headwall	Hdwl	Monument	Mon
Equation	EQ, Eq	Height	Ht, H, h	Mountain	Mt
Estimate	Est	Height of Instrument	HI	N	
Excavation	Exc	Head Water	HW	National	Nat'l
Existing	Exst	Highway	Hwy	Non-Reinforced Cast-In-Place	NRCIPCP
Expansion Joint	Exp Jt	Horizontal	Horz	Concrete Pipe	
Extend or Extension	Ext	Horizontal Elliptical Reinforced	HERCP	Normal Crown	NC
External	Ext	Concrete Pipe		North	N
F		I		Northbound	NB
Federal	Fed	Improvement	Impr	Number	No
Feet or Foot	Ft	Inch or Inches	In	O	
Feet per Foot	/ft	Include, Included or Inclusive	Incl	Obliterate	Obl
Feet Per Second	FPS	Inside Diameter	ID	Original	Orig
Figure	Fig	Invert	Inv	Outside Diameter	OD
Finish	Fin	Irrigation	Irr	Overhead	OH
Floor	Fl	J		Overpass	OP
Flow Line	FL	Joint	Jt	P	
Footing	Ftg	Junction	Jct	Parkway	Pkwy
Forest	Fst	L		Pavement	Pvmt
Found	Fnd	Laboratory	Lab	Pedestrian	Ped
Frame	Fr	Lateral	Lat	Place	Pl
Freeway	Fwy	Left	Lt	Point	Pt
Frontage	Frt	Length or Length of Curve	L	Point of Compound Curvature	PCC
Furnish or Furnished	Furn	Length of Normal Crown Removal	L _C	Point of Curvature	PC
Future	Fut	Length of Spiral	L _S	Point of Intersection	PI
G		Length of Superelevation Runoff	L _S	Point of Reverse Curvature	PRC
Gas	G	Line	Ln	Point of Tangency	PT
Gas Meter	GM	Linear or Lineal	Lin	Point on Curve	POC
Gas Valve	GV	Linear Feet	Lin Ft	Point on Semi-Tangent	POST
Galvanize or galvanized	Galv	Location	Loc	Point on Spiral	POS
Gauge	Ga	M		Point on Tangent	POT
Government	Gov't	Manhole	MH	Polyethylene	PE
Grade	Gr	Material	Mtl		
Grade Separation	GS	Maximum	Max		
		Median	Med		

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STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

GENERAL ABBREVIATIONS

REV.
9/04

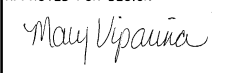
DRAWING NO.
C-01.30
Sheet 2 of 3

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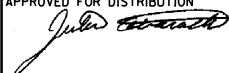
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2			
3			
4			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
P (cont)		S		T (cont)	
Polyvinyl Chloride	PVC	Salvage	Salv	Telephone	Tel
Portland Cement Concrete	PCC	Section	Sct	Temporary	Temp
Portland Cement Concrete Pavement	PCCP	Select Material	SM	Temporary Construction Easement	TCE
Pounds	Lbs	Sheet	Sh	Timber	Tbr
Pounds Per Square Inch	PSI	Shoulder	Shldr	Top of Curb	TC
Preliminary	Prelim	Shrinkage	Shr	Topography	Topo
Prestress, Prestressed or Prestressing	PS	Sidewalk	S/W	Township	T
Project	Prj	Sight Distance, Stopping	SD _s	Traffic Interchange	TI
Property Line	P/L	Single	Sgl	Transition	Trns
Proposed	Prop	Skew	Sk	Turning Point	TP
Protection	Prt	South	S	Turnout	TO
Provision or Provide	Prv	Southbound	SB	Typical	Typ
Q		Special	Spcl	U	
Quadrant	Quad	Specification	Spec	Underground	Ugnd
Quantity or Quantities	Quan	Spiral Rate of Change	a	Underpass	UP
Quantity of Drainage Runoff	Q	Spiral To Curve	SC	V	
R		Spiral To Tangent	ST	Variable	Var
Radius	R	Square	Sq	Vertical	Vert
Railroad	RR	Square Feet	Sq Ft	Vertical Curve	VC
Range	R	Square Yard	Sq Yd	Vertical Elliptical Reinforced	VERCP
Reconstruct	Recst	Standard	Std	Concrete Pipe	
Reference	Ref	State Route	SR	Vertical Point of Intersection	VPI
Reinforced or Reinforcing	Reinf	Station	Sta	Viaduct	Via
Reinforced Concrete	RC	Street	St	Vitrified Clay Pipe	VCP
Reinforced Concrete Pipe	RCP	Structure or Structural	Str	Volume	Vol
Reinforcing Bar	Rebar	Subdivision	Subdiv	W	
Relocate, Relocation or Relocated	Reloc	Subgrade	SG	Water	W
Remove	Rem	Subgrade Seal	SS	Water Meter	WM
Required	Reqd	Superelevation	e or Super	Water Valve	WV
Reservation	Resv	Surface	Surf	Welded Wire Fabric	WWF
Residence	Res	Survey	Sur	West	W
Retain or Retaining	Ret	Swell	Sw	Westbound	WB
Revised or Revision	Rev	Symmetrical	Sym	Western Wood Products Association	WWPA
Right	Rt	T		Wide or Width	W
Right-of-Way	R/W	Tangent	Tan	Wood	Wd
Road	Rd	Tangent Length	T	Y	
Roadway	Rdwy	Tangent to Spiral	TS	Yard	Yd
Route	Rte	Telegraph	Tlg		
Rubber Gasket Reinforced Concrete Pipe	RGRCP				

APPROVED FOR DESIGN



APPROVED FOR DISTRIBUTION



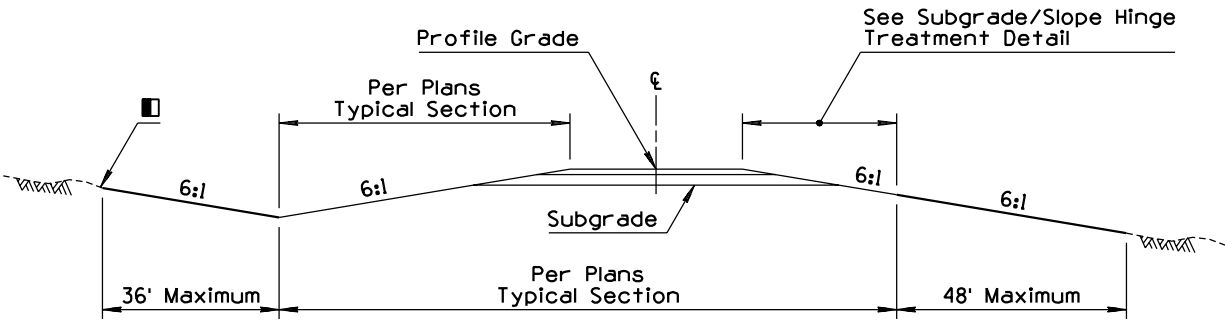
STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

REV. 9/04

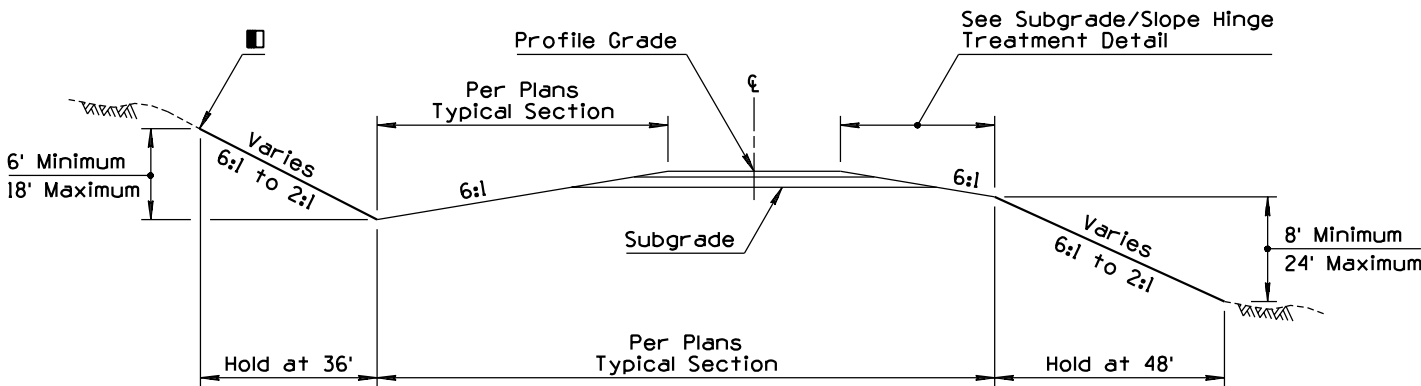
GENERAL ABBREVIATIONS

DRAWING NO. 1
C-01.30
Sheet 3 of 3

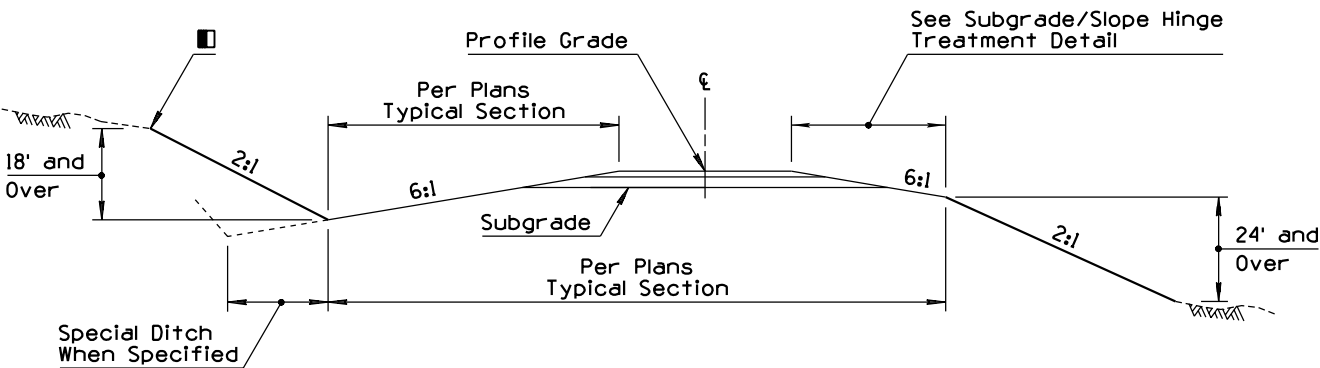
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2	MODIFIED SHOULDER WEDGE DETAIL	TC	1/93
3	MODIFIED TITLE	RLF	9/04
4			



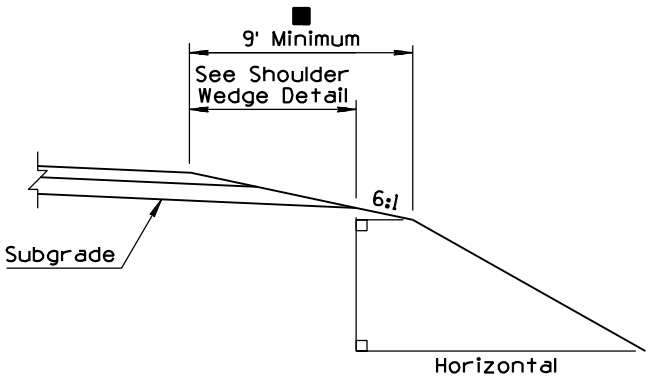
MINIMUM SLOPES



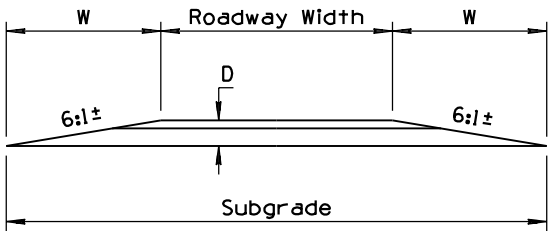
INTERMEDIATE SLOPES



MAXIMUM SLOPES

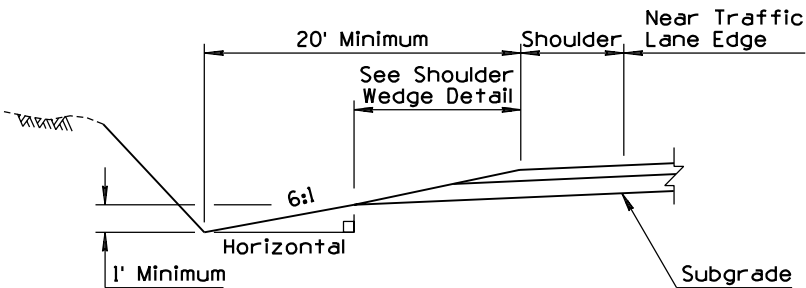


SUBGRADE/SLOPE HINGE TREATMENT DETAIL



$W = D \times \text{Slope (6:1)}$
 $D = \text{Str Sct Depth (Ft) Excluding ACFC}$
 $\text{Subgrade} = 2 \times W + \text{Roadway Width}$

2 SHOULDER WEDGE DETAIL



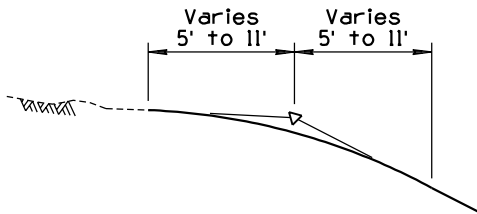
MINIMUM DITCH CONDITIONS DETAIL

GENERAL NOTES

1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.
4. For slope controls within interchange areas, see project plans.
5. When median slopes intersect, see project plans for controls.
6. These slopes are intended to be used with new or reconstructed roadways.

NOTE TO DESIGNERS

The 9' minimum is required when guardrail is utilized on the project. Treatment shall be uniform throughout the project length. The 9' requirement may be waived under special conditions where guardrail is not utilized.

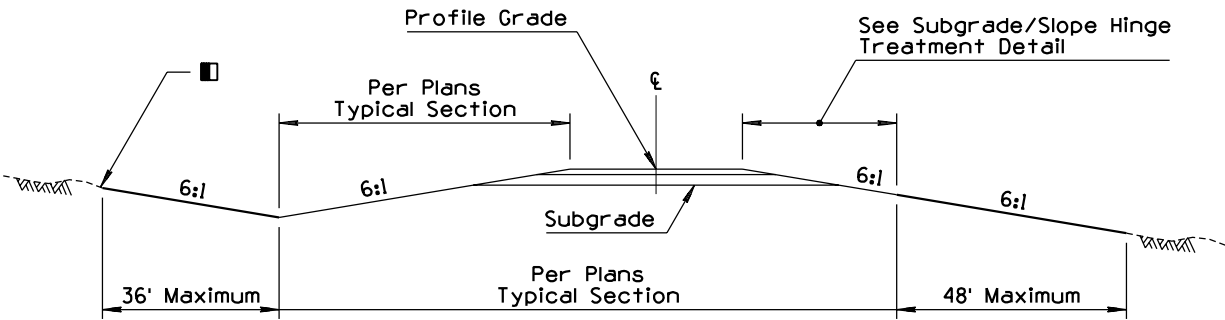


- 1 SLOPE ROUNDING DETAIL
- Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.

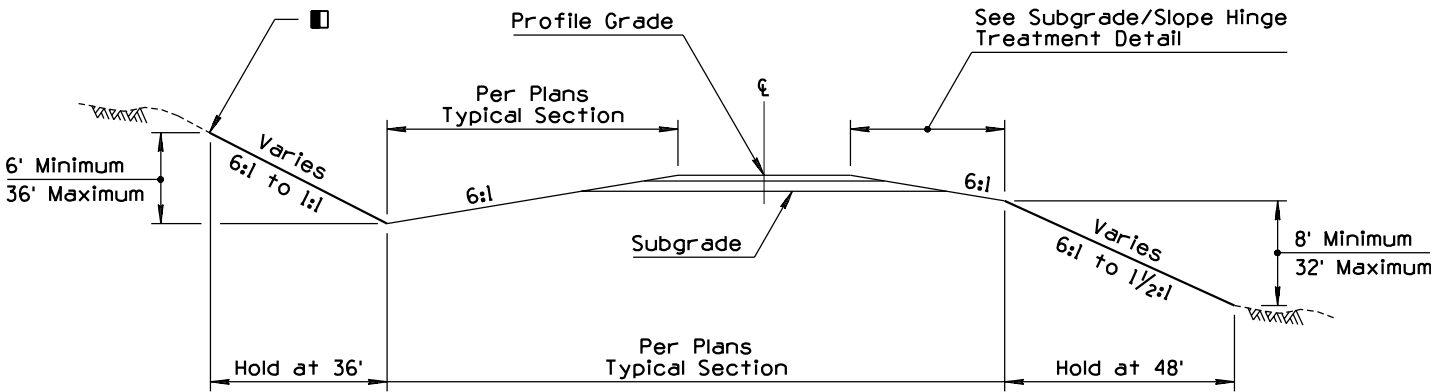
For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 1/93
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	SLOPES DIVIDED HIGHWAYS 3	DRAWING NO. C-02.10

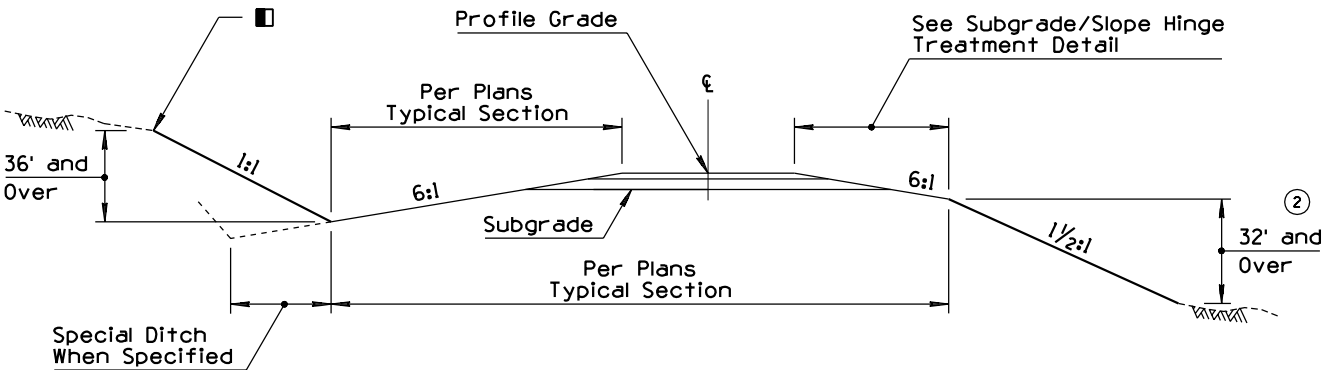
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2	CORRECTED FILL HEIGHT CALLOUT	TC	1/93
3	MODIFIED SHOULDER WEDGE DETAIL	TC	1/93
4			



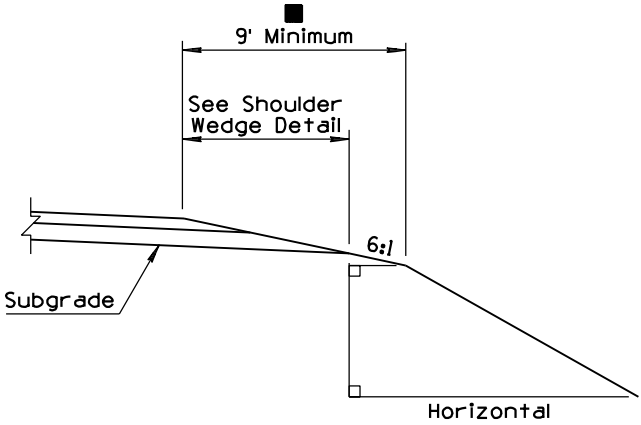
MINIMUM SLOPES



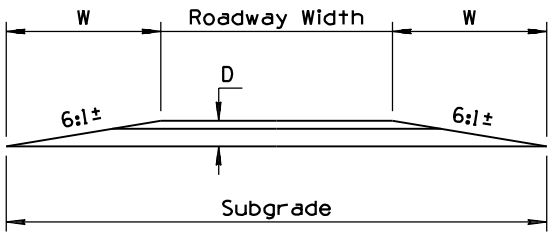
INTERMEDIATE SLOPES



MAXIMUM SLOPES

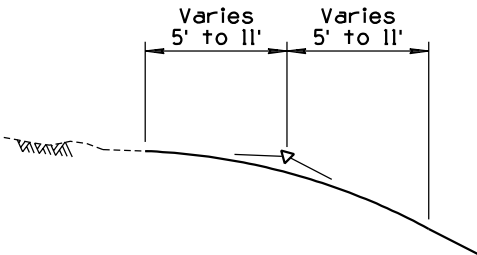


SUBGRADE/SLOPE HINGE
TREATMENT DETAIL



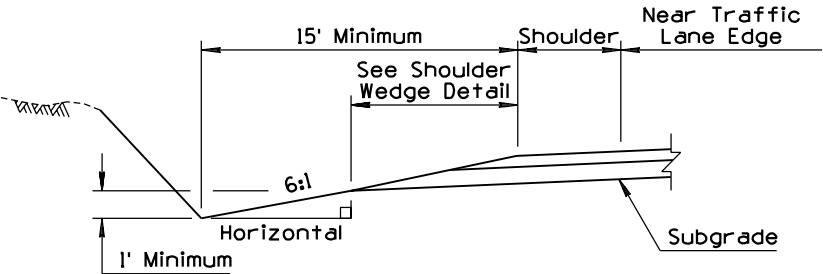
$W = D \times \text{Slope (6:1)}$
 $D = \text{Str Sct Depth (Ft) Excluding ACFC}$
 $\text{Subgrade} = 2 \times W + \text{Roadway Width}$

3 SHOULDER WEDGE DETAIL



1 SLOPE ROUNDING DETAIL
Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.

For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.



MINIMUM DITCH CONDITIONS DETAIL

GENERAL NOTES

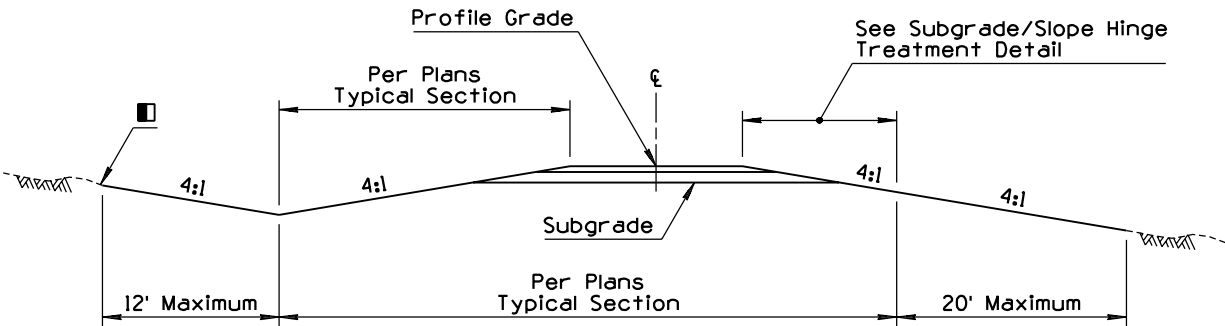
1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.
4. When median slopes intersect, see project plans for controls.
5. These slopes are intended to be used with new or reconstructed roadways.

NOTE TO DESIGNERS

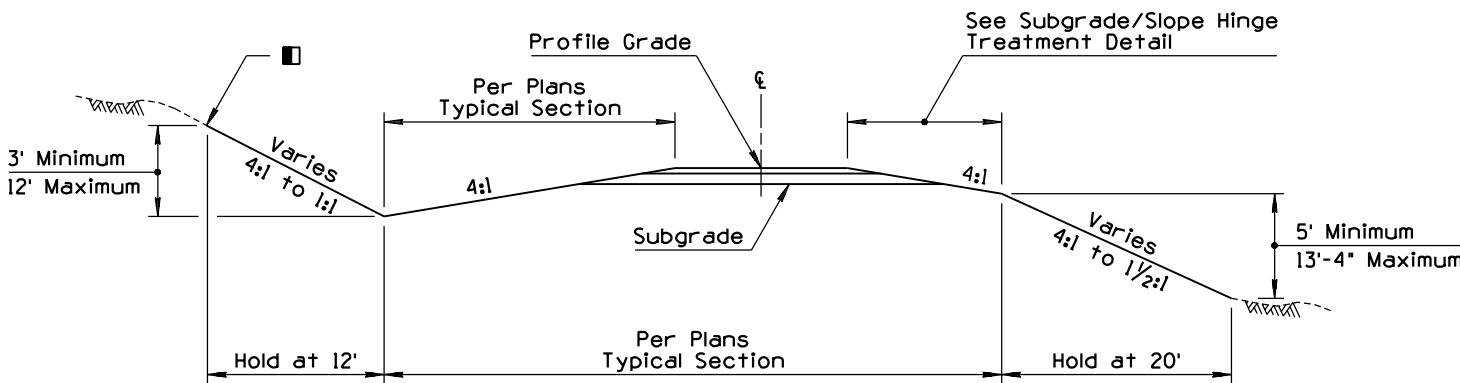
The 9' minimum is required when guardrail is utilized on the project. Treatment shall be uniform throughout the project length. The 9' requirement may be waived under special conditions where guardrail is not utilized.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 1/93
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SLOPES PRIMARY ROADWAYS	DRAWING NO. C-02.20

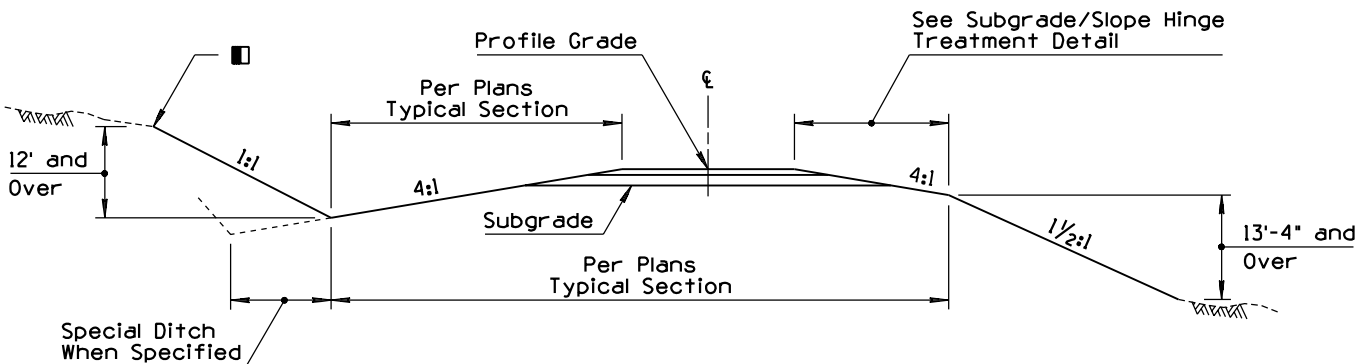
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED 9' DIMENSION TO 6'	PNB	10/95
2	DELETED GENERAL NOTE 4	RLF	9/04
3			
4			



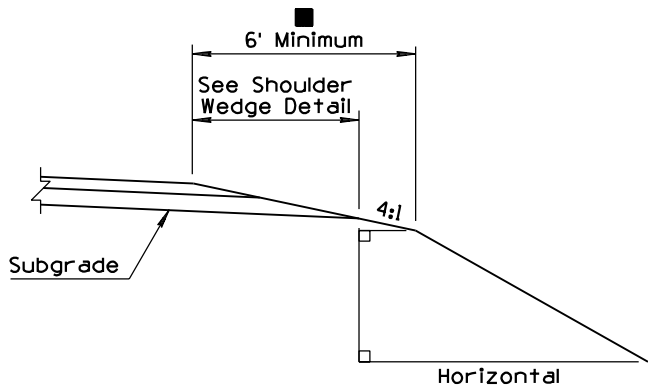
MINIMUM SLOPES



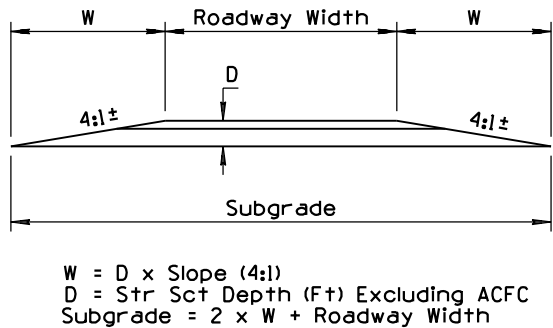
INTERMEDIATE SLOPES



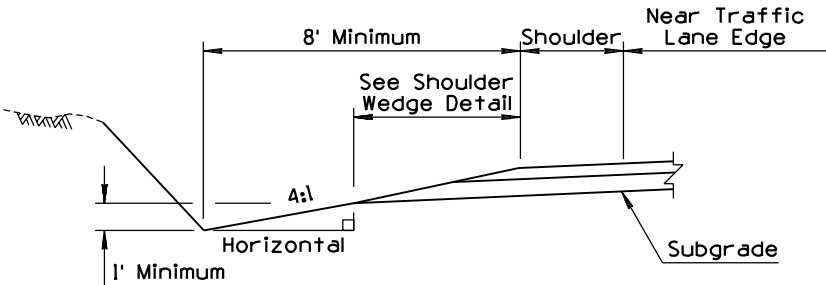
MAXIMUM SLOPES



SUBGRADE/SLOPE HINGE TREATMENT DETAIL



SHOULDER WEDGE DETAIL



MINIMUM DITCH CONDITIONS DETAIL

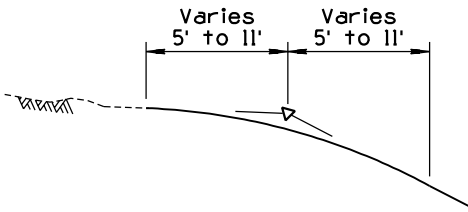
GENERAL NOTES

1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.

②

NOTE TO DESIGNERS

The 6' minimum is required when guardrail is utilized on the project. Treatment shall be uniform throughout the project length. The 6' requirement may be waived under special conditions where guardrail is not utilized.



■ SLOPE ROUNDING DETAIL
Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.

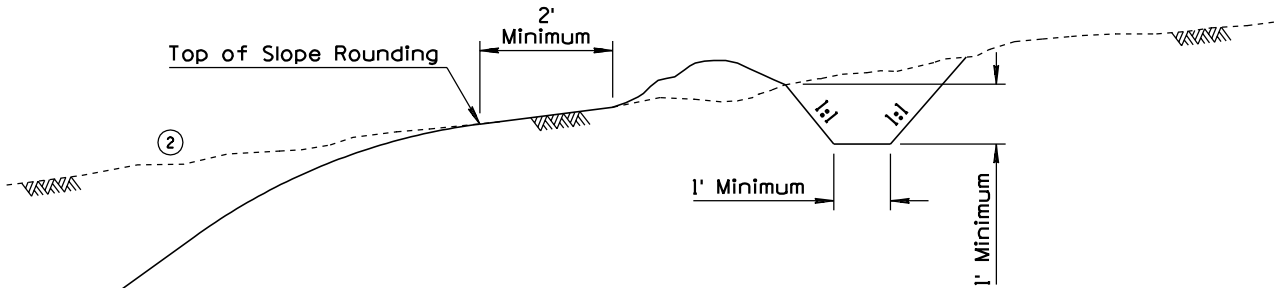
For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	SLOPES SECONDARY/MISC ROADWAYS	DRAWING NO. C-02.30

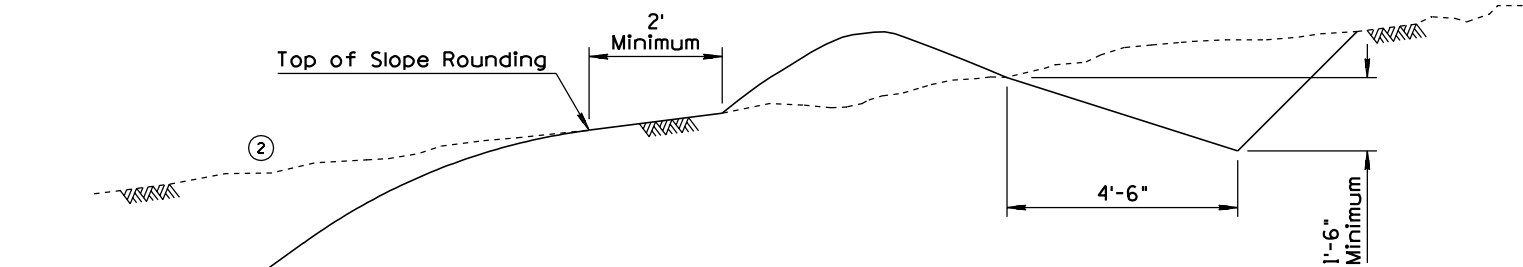
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2	REVISED EXISTING GROUND-LINE SYMBOLLOGY	RLF	9/04
3			
4			

GENERAL NOTES

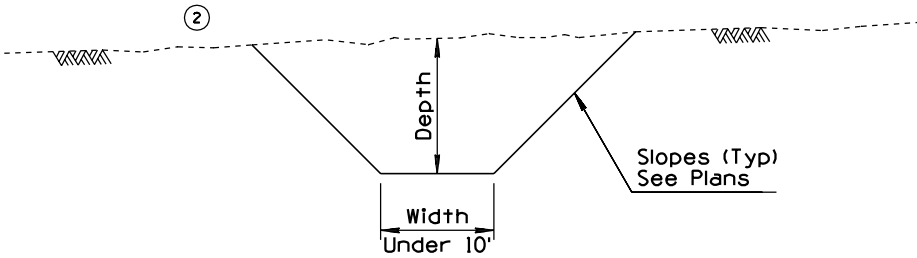
1. Dimensions of ditches and channels shall be shown on the plans as bottom width, depth and length.
2. Ditches and channels shall be constructed with a minimum grade to prevent erosion. Ditch outlet treatment shall be as provided on plans.



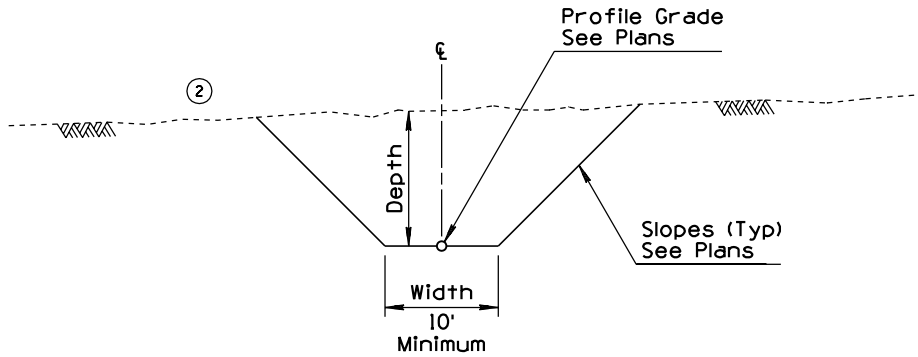
CROWN DITCH



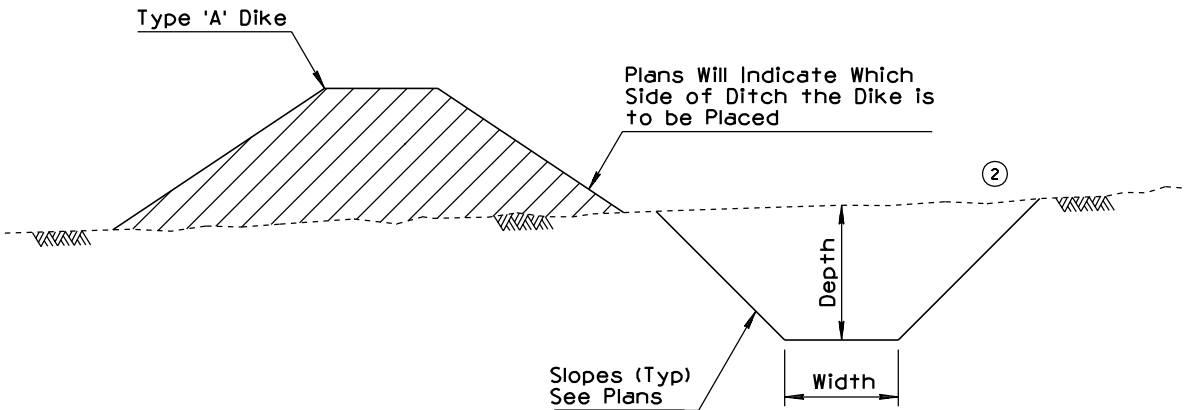
GRADER DITCH



DITCH



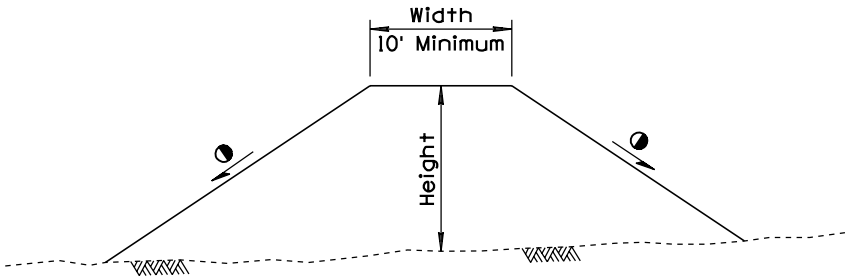
CHANNEL



DITCH AND DIKE

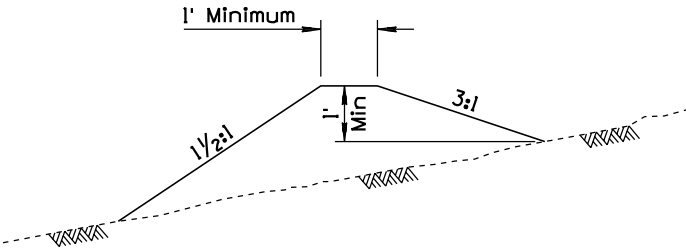
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS DITCHES AND CHANNELS	DRAWING NO. C-03.10 Sheet 1 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED SLOPE TABLE	RLF	9/04
2	DELETED GENERAL NOTE 2: REVISED SLOPE DESIGNATIONS	RLF	9/04
3			
4			

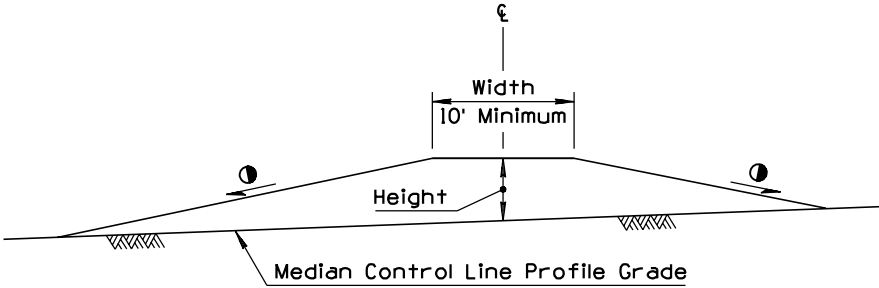


TYPE A DIKE

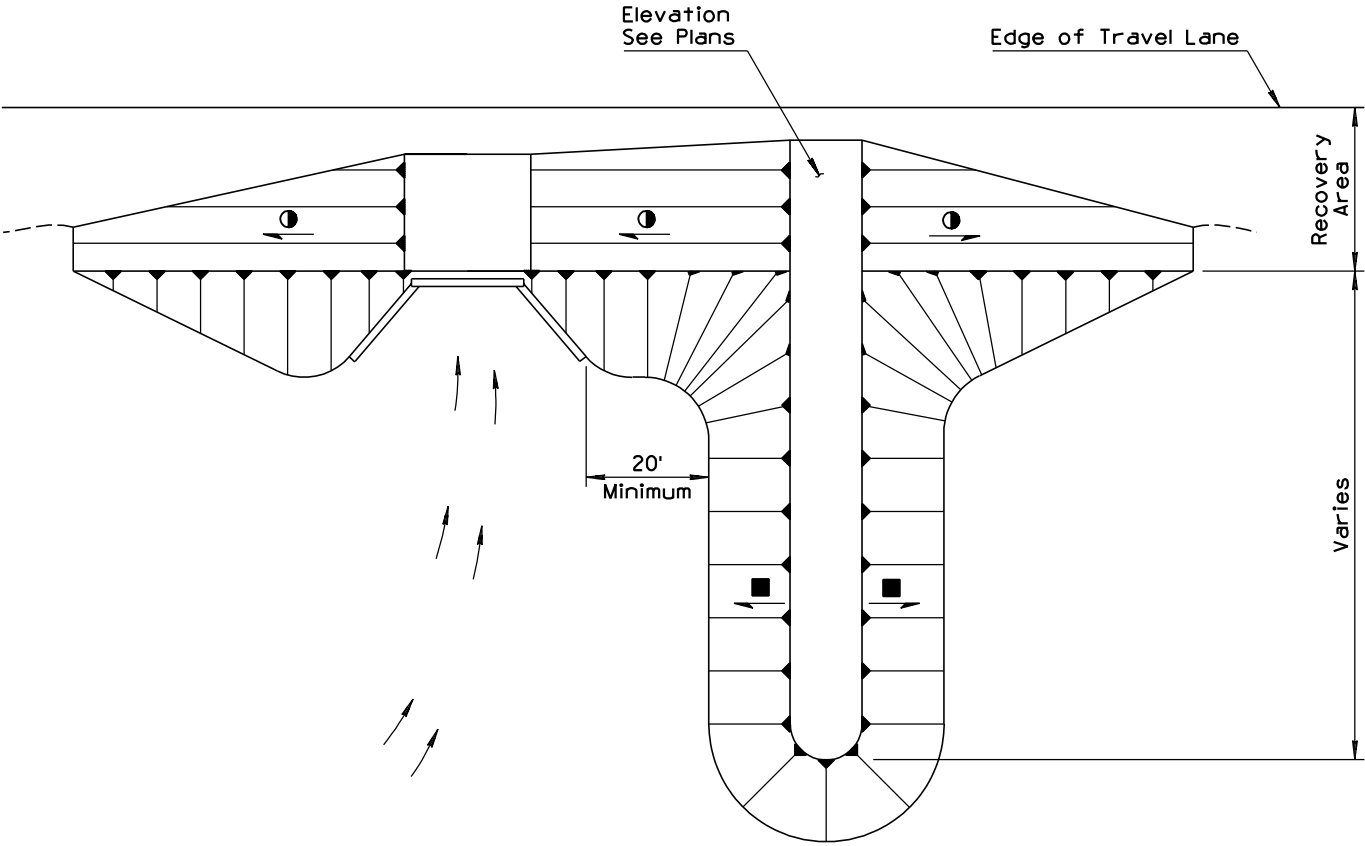
①



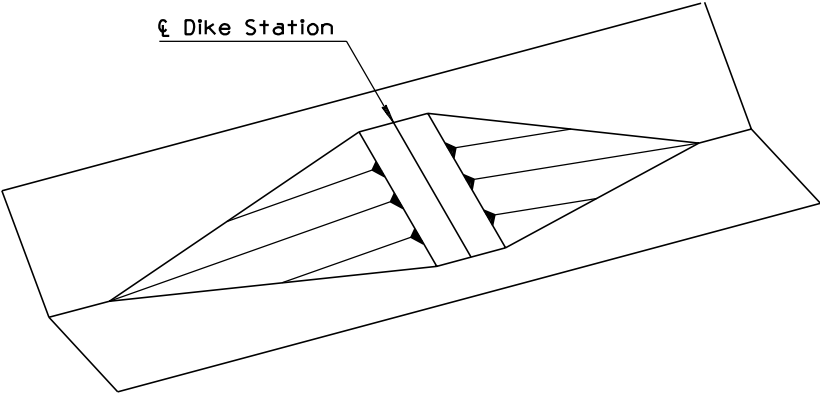
CROWN DIKE



TYPE B TRANSVERSE MEDIAN DIKE



TYPICAL DIKE INSTALLATION AT STRUCTURE



TYPICAL TRANSVERSE MEDIAN DIKE INSTALLATION

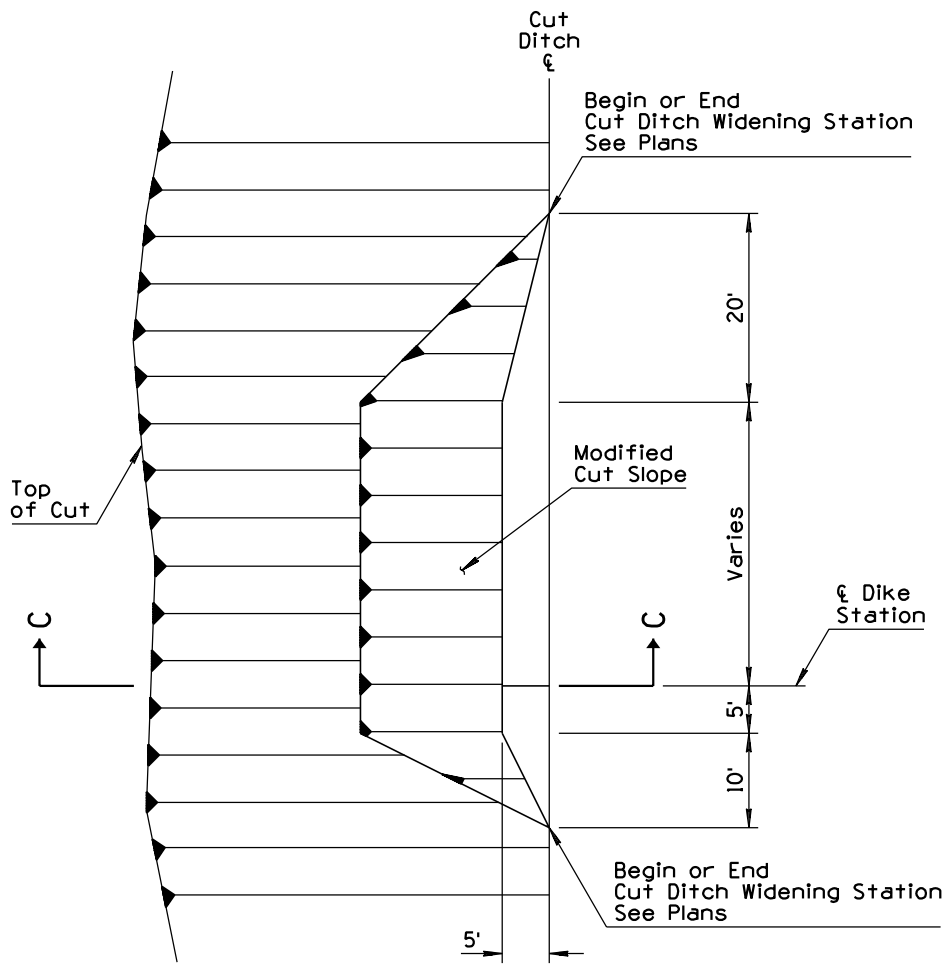
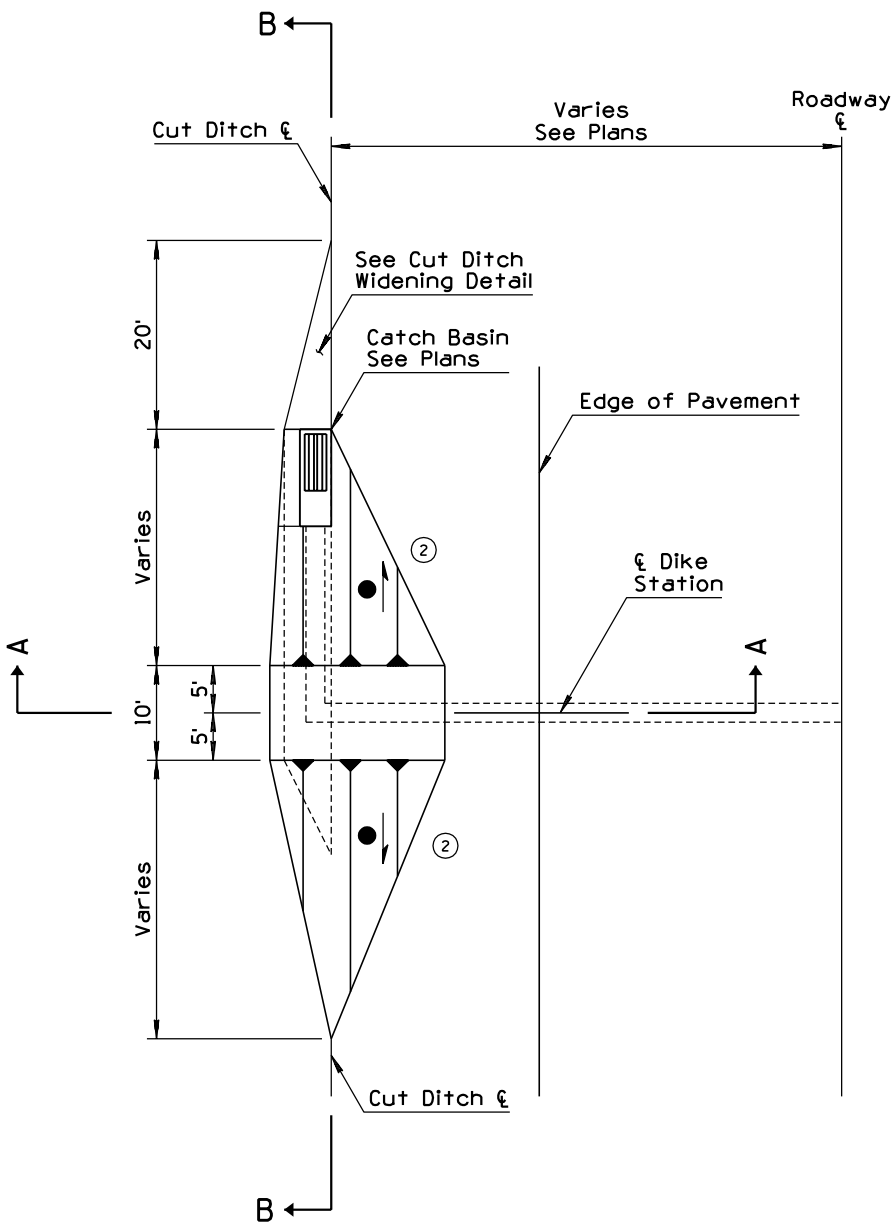
GENERAL NOTES

1. Dimensions of dikes shall be shown on the plans as top width, height, length and top of dike elevation.

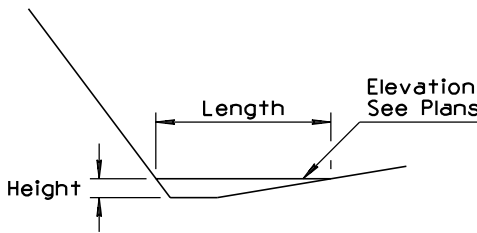
- ②
- Slope as Shown on Plans (10:1 Desirable)
 - Slope as Shown on Plans

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS DIKES	DRAWING NO. C-03.10 Sheet 2 of 5

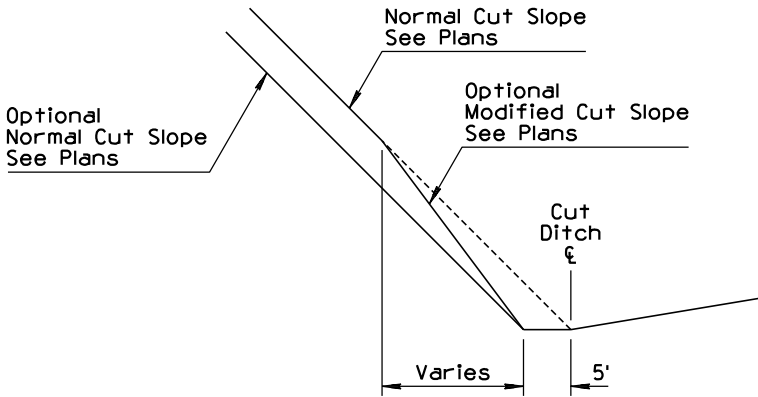
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED NEW GENERAL NOTE	RLF	9/04
2	REVISED SLOPE DESIGNATIONS	RLF	9/04
3			
4			



CUT DITCH WIDENING DETAIL



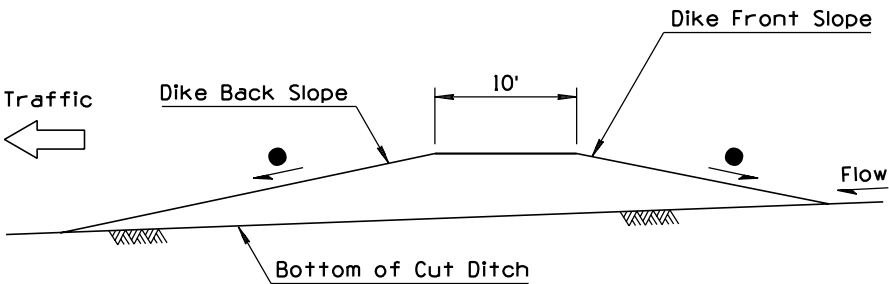
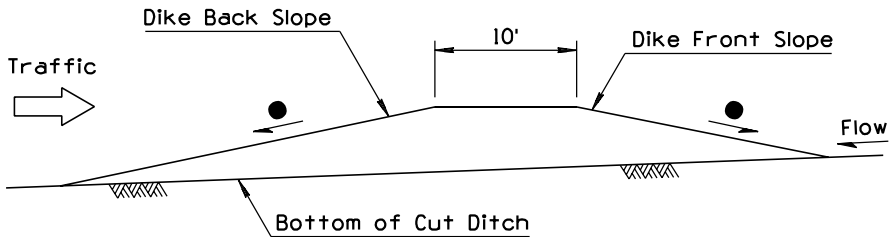
SECTION A-A



SECTION C-C

GENERAL NOTES

1. Dimensions for ditch dikes shall be shown on the plans as dike stationing, height, length, dike back slope and top of dike elevation.
2. Dimensions for cut ditch widening shall be shown on the plans as beginning and ending stations.
- ① 3. All slopes are given relative to the grade of the cut ditch at the toe intersection.
- ② 10:1 Desirable Slope

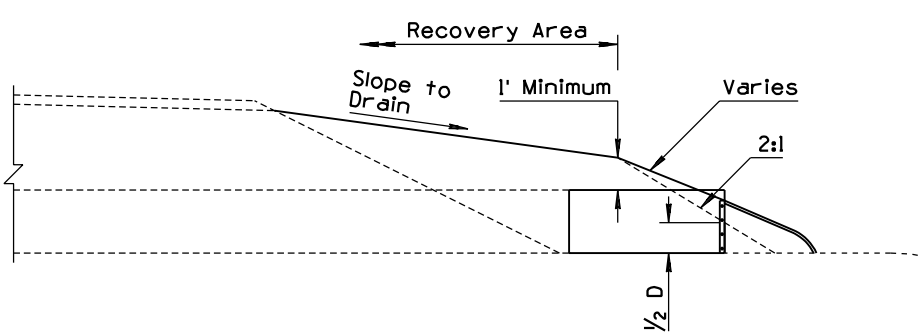


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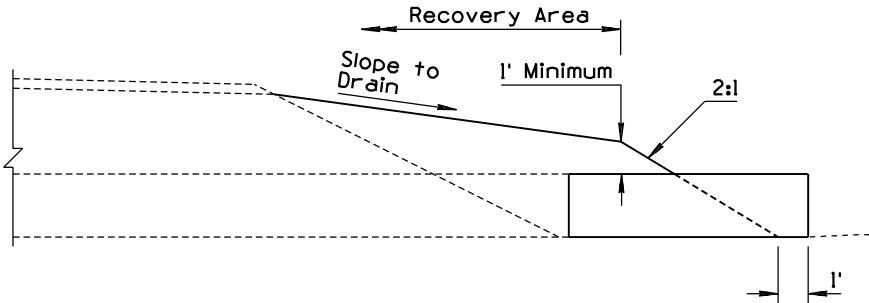
SECTION B-B

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS DITCH DIKE	DRAWING NO. C-03.10 Sheet 3 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			



SECTION A-A (WITH END SECTION)

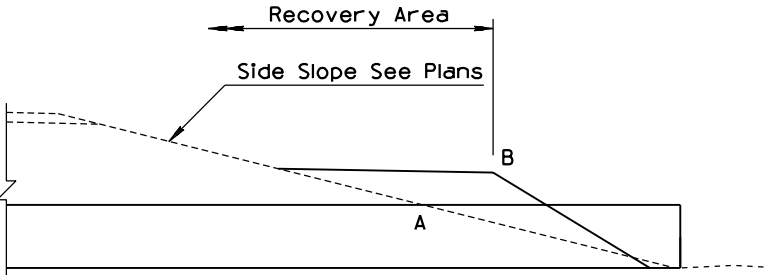


SECTION A-A (WITHOUT END SECTION)

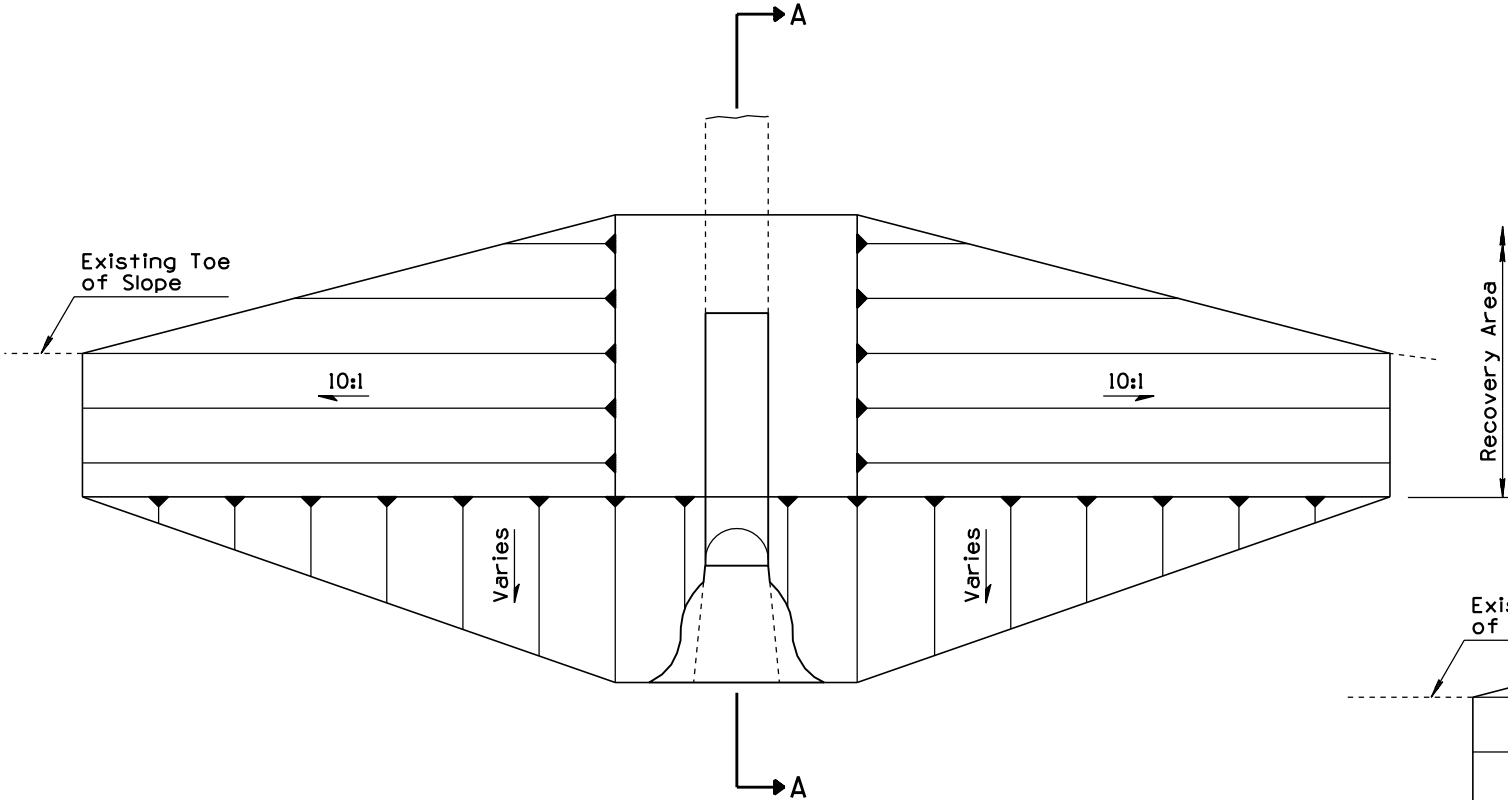
- ### GENERAL NOTES
1. Pipe berms not required when pipe projection is protected by guardrail.
 2. Berm construction similar for multiple pipe installation and for pipes without end sections.
 3. Berm construction shown is for pipe extensions. Berm construction similar for new pipe installation. See Pipe Berm Requirement Detail. If Point A is within the recovery area, then a pipe berm is required and Point B is set at the edge of the recovery area.

NOTE:
 Single Pipe Installation: D = Outside Diameter of Pipe
 Multiple Pipe Installation: D = Outside Edge to Outside Edge of Pipes

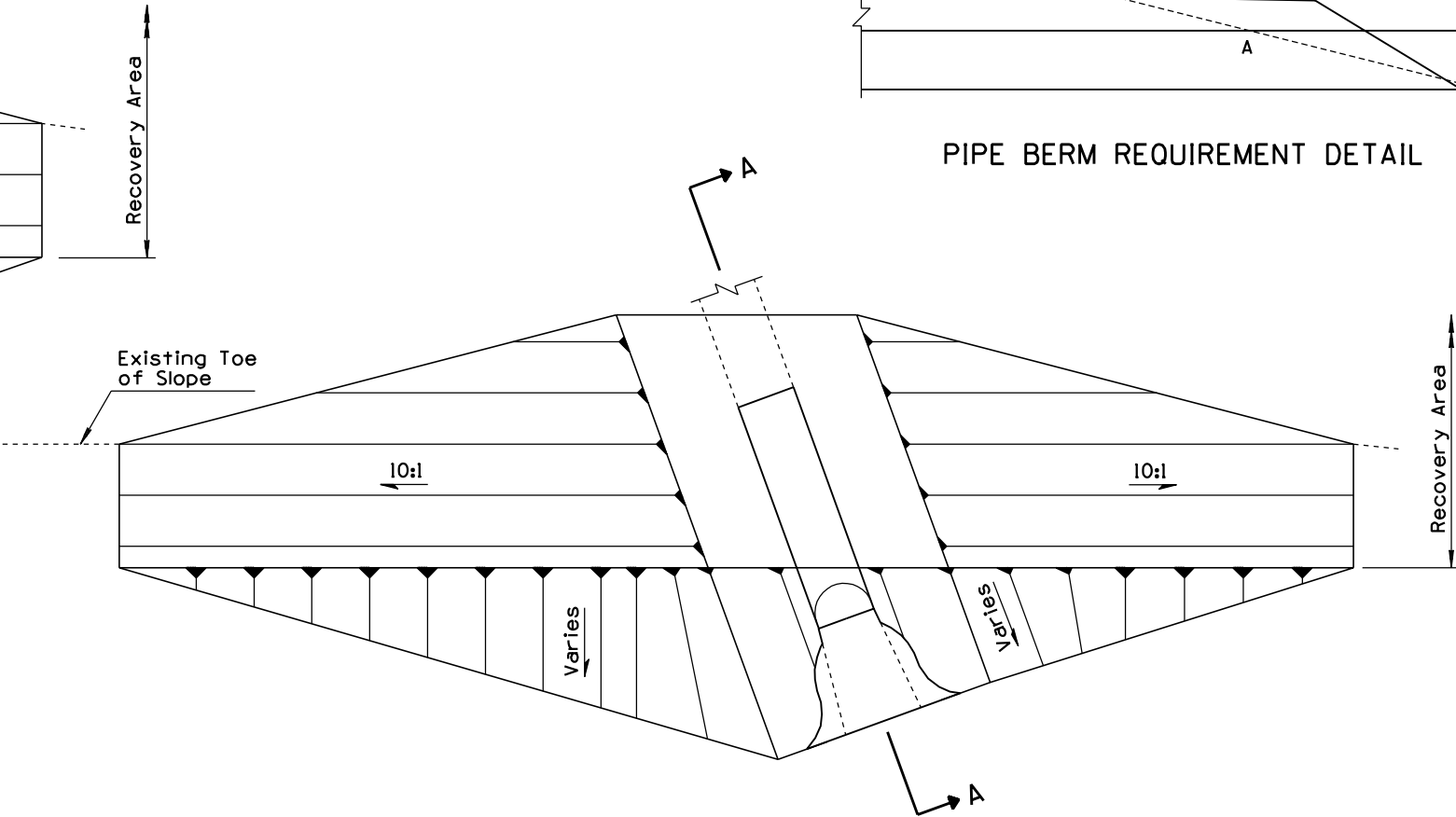
For Pipe Backfill and Bedding Material Limits See Std Dwg C-13.15



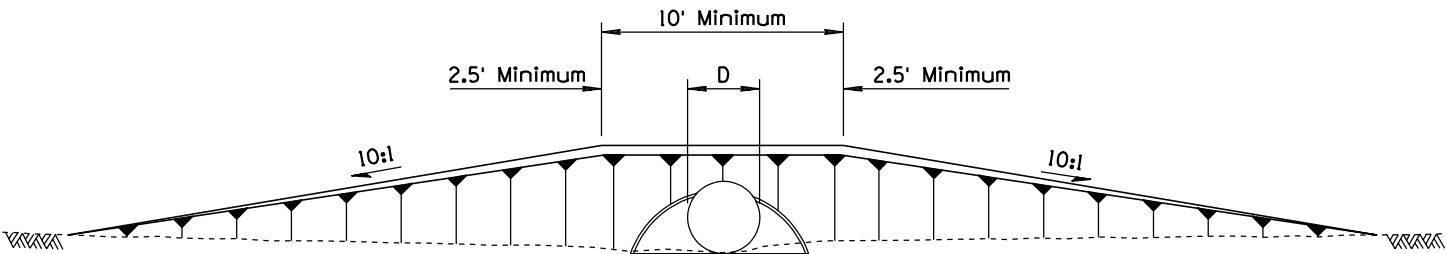
PIPE BERM REQUIREMENT DETAIL



STRAIGHT PIPE PLAN



SKEWED PIPE PLAN



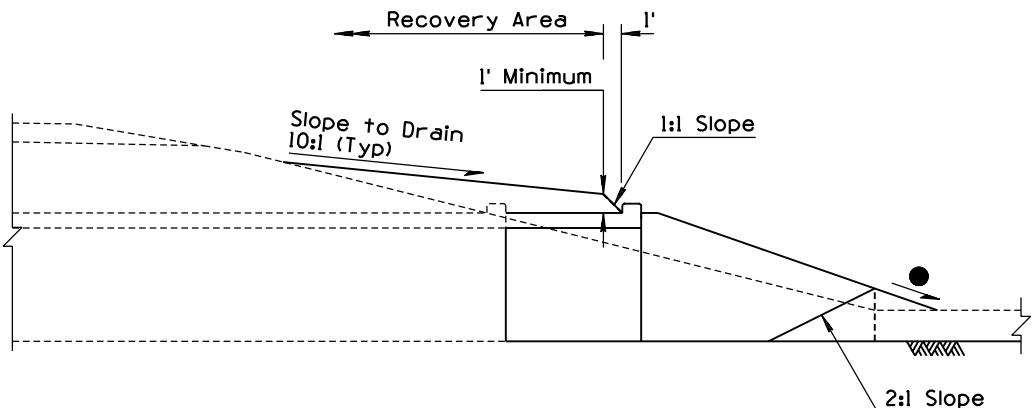
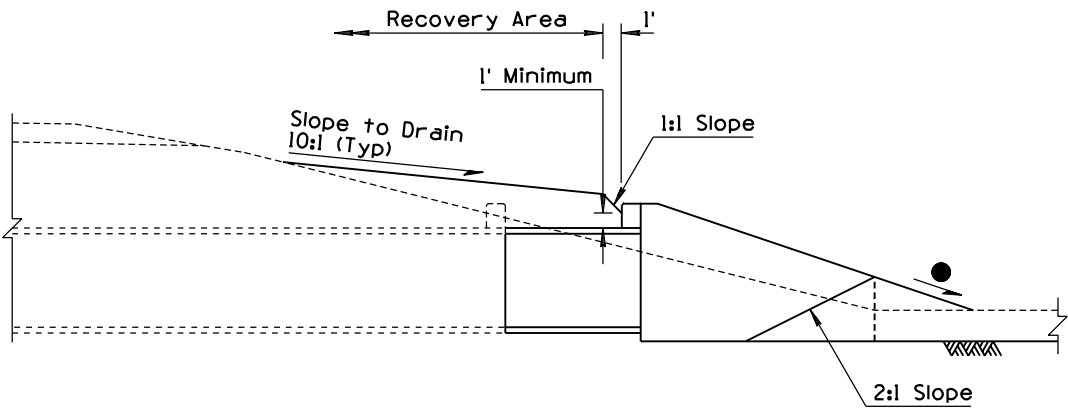
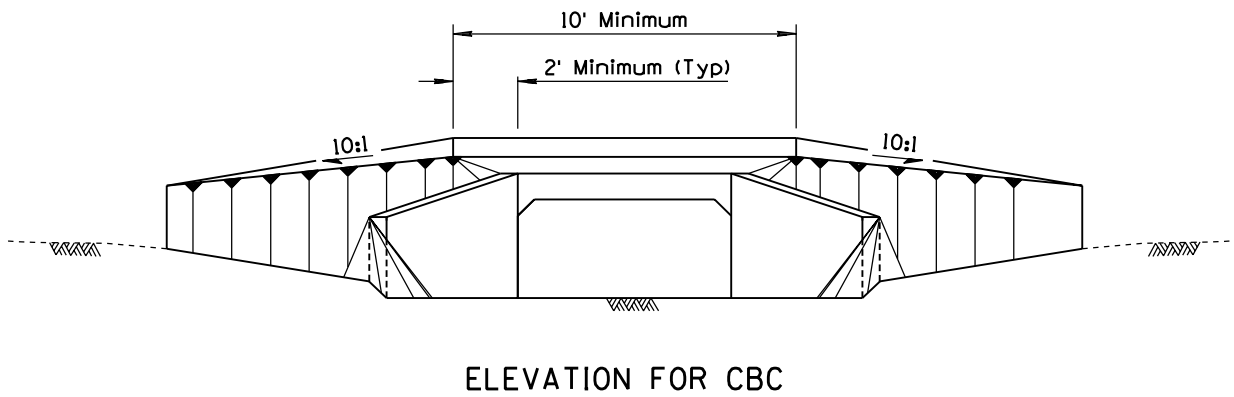
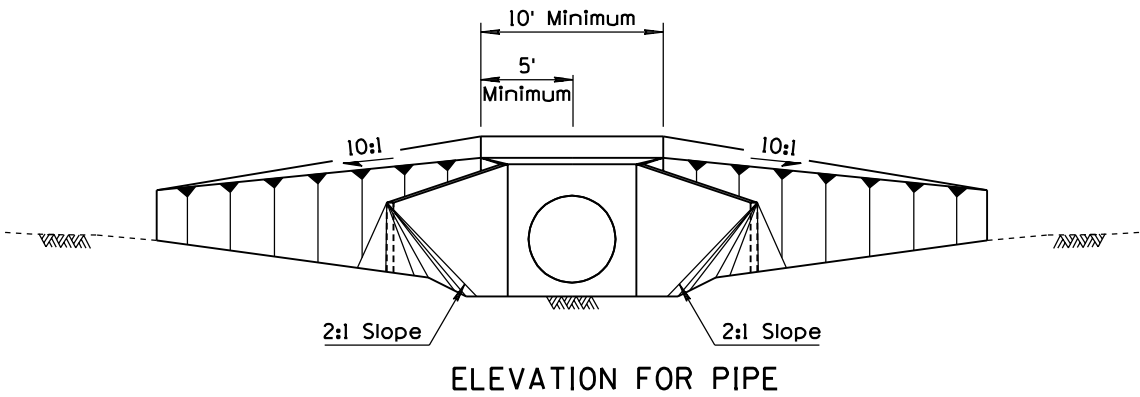
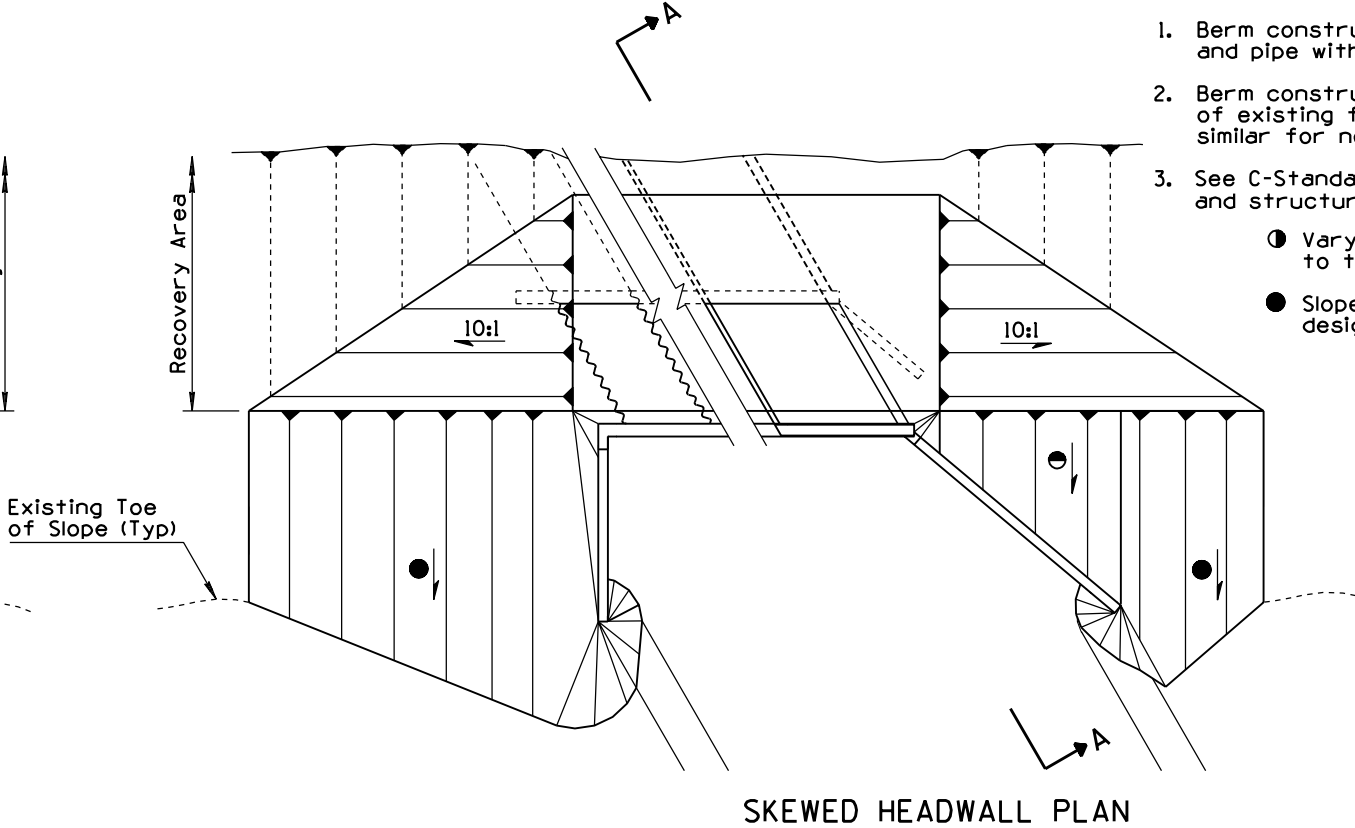
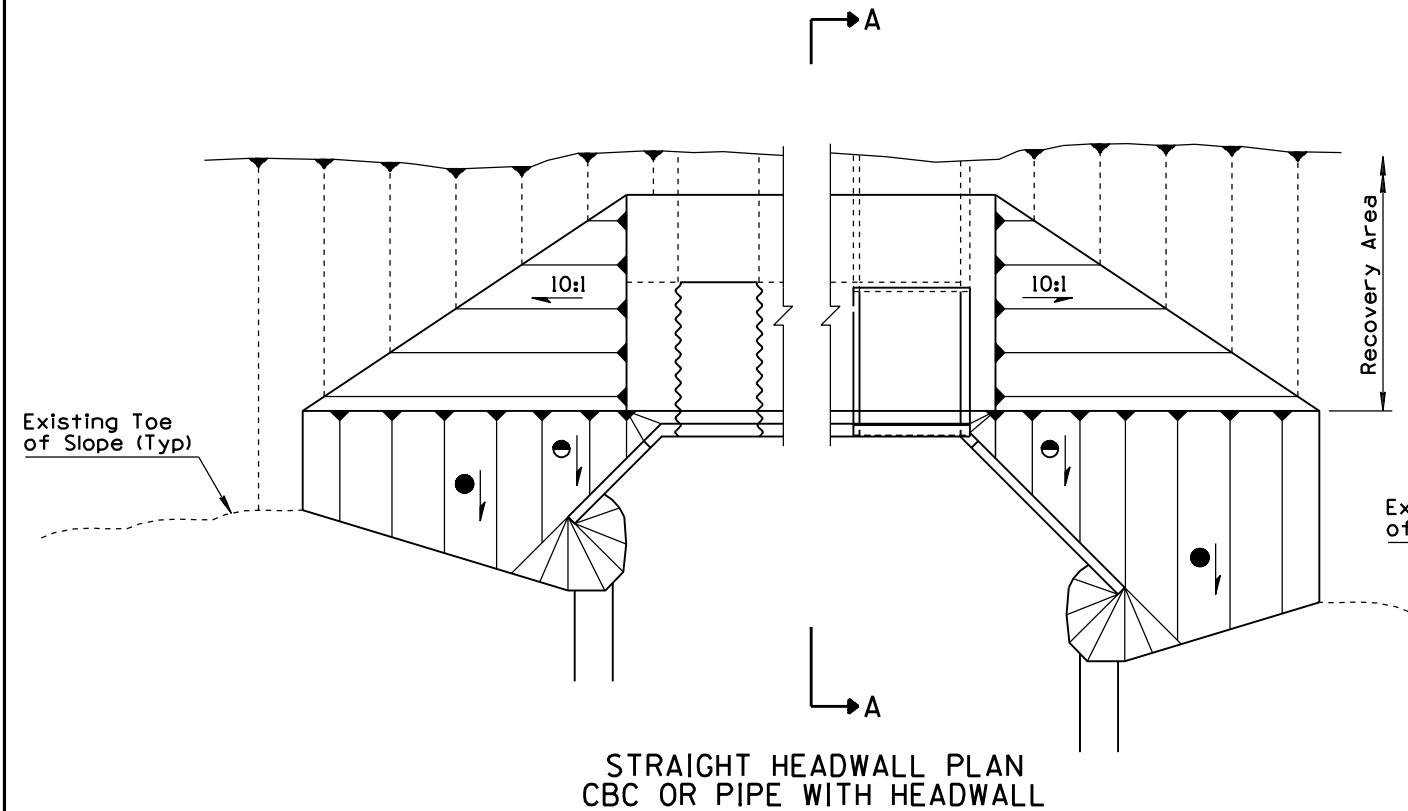
ELEVATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 3/94
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	DITCHES, CHANNELS, DIKES AND BERMS PIPE BERMS	DRAWING NO. C-03.10 Sheet 4 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

GENERAL NOTES

- 1. Berm construction similar for box culvert and pipe with headwall.
- 2. Berm construction shown is for extension of existing facilities. Berm construction similar for new facilities.
- 3. See C-Standards and B-Standards for pipe and structure backfill limits.
 - Vary slope. Slope shall match to top of wing walls.
 - Slope shall match wing walls design slope (2:1, 4:1, or 6:1)



APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS HEADWALL BERMS	DRAWING NO. C-03.10 Sheet 5 of 5

GENERAL NOTES

1. Round all exposed concrete corners.
2. Tank, stub, trash rack and angle supports shall be shop fabricated, welded and galvanized in accordance with AASHTO M36.
3. Stub shall be of annular corrugation. Downdrain piping beyond stub may be either annular or helical corrugation.
4. Permissible couplings shall be mechanical, heat-shrinkable polyolatin sheet; one piece lap type neoprene sheet or slip seam; all minimum 12" width and minimum 18 gauge.
5. Inlet invert slope shall be uniformly downward from 1' inside of embankment curb base.
6. All concrete shall be Class B. Embankment curb concrete shall be in accordance with the Std Specs.
7. See Std Dwg C-04.40 for downdrain length.
8. See Std Dwg C-10.06 for nested guardrail requirements.

INLET PLAN

10'-0"

2'-6"

1'-0"

AC Pavement

Spillway Inlet

Guardrail Post

Warp Inlet Concrete to Meet Elevation of Top of Tank

Normal or 2' Widened Shoulder Line

Embankment Curb

Anchor Stakes # 6 Rebar 4' Long 10' Center to Center

12" CMP

9 Galvanized Wire Ties Double Wrapped

1/2" Expansion Joint Preformed Joint Filler

ANCHOR DETAIL

OUTLET HEADWALL AND CONCRETE APRON

Flow

2'-0"

3'-6"

1'-3"

6"

6'-0"

5'-6"

8'-0"

4'-0"

1/2" Expansion Joint Preformed Joint Filler

4 Rebars, 1'-0" Center to Center Horizontal and Vertical. Place 1/2" Clear to Inside of Walls. Bend End Wall Vertical Rebars 1'-0" into Floor

SECTION A-A

Finished Grade

1'-0"

3'-0"

6"

3"

1:6 Batter Both Sides

3- # 3 Rebars Continuous Length 14'-9" Field Bend: 1-Way 20'-6" Field Bend: 2-Way

6x6-W1.4/W1.4 Wire Mesh

24"x4'-0" Annular CMP Tank, Steel: 16 Gauge

9"

6"

3'-0"

4"

Elbow

9" Minimum

Fill Slope

12", 16 Gauge Annular or Helical CMP

6"

4" Minimum

Outlet

Toe of Slope

1'-3"

6x6-W1.4/W1.4 Wire Mesh in Apron

3'-7"

4"

6"

4"

9"

3"

1'-3"

CMP OUTLET ON ROCK

Embankment Slope

Elbow

1'-0"

TRASH RACK DETAIL

8 Rebar

3 Rebar (Typ)

6"

6"

6"

6"

6"

6"

1'-9 3/4" ID

Note: Steel to be Galvanized after Fabrication

DETAIL ANGLE SUPPORTS FOR TRASH RACK

2-1/4"x3 1/2" Galvanized J Bolts and Nuts

3/8" Diameter Hole

5"x3"x5/16" L 4 Required

1 3/8"

1"

Tack Weld

APPROVED FOR DESIGN
May Vipanua

APPROVED FOR DISTRIBUTION
Julia

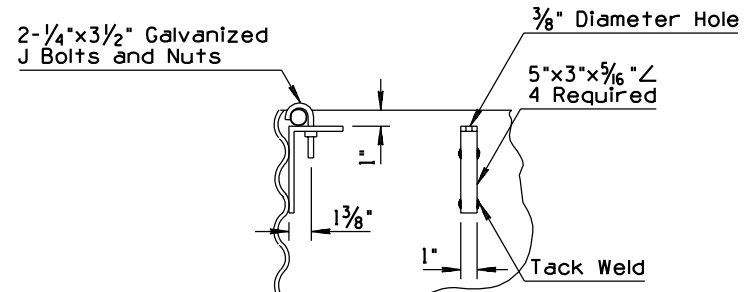
STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

DOWNDRAIN, EMBANKMENT

REV.
9/04

DRAWING NO.
C-04.20

-
- The drawing consists of two parts: a top-down view of the manhole and a cross-sectional view below it.
- Top-down View:** A circle representing the manhole opening. A grid of rebar is shown. A label "# 3 Rebar (Typ)" points to one of the grid lines. A label "#8 Rebar" points to the outermost ring of rebar. The grid spacing is indicated as 6" both horizontally and vertically.
- Cross-sectional View:** A semi-circular arc representing the manhole wall. The height from the base to the top of the wall is 6". The base is a horizontal line with a dimension of 1'-9 3/4" ID. A label 3/16" points to the wall thickness. A label 3/8" points to the base thickness. A note at the bottom right states: "Note: Steel to be Galvanized after Fabrication".



DETAIL
ANGLE SUPPORTS
FOR TRASH RACK

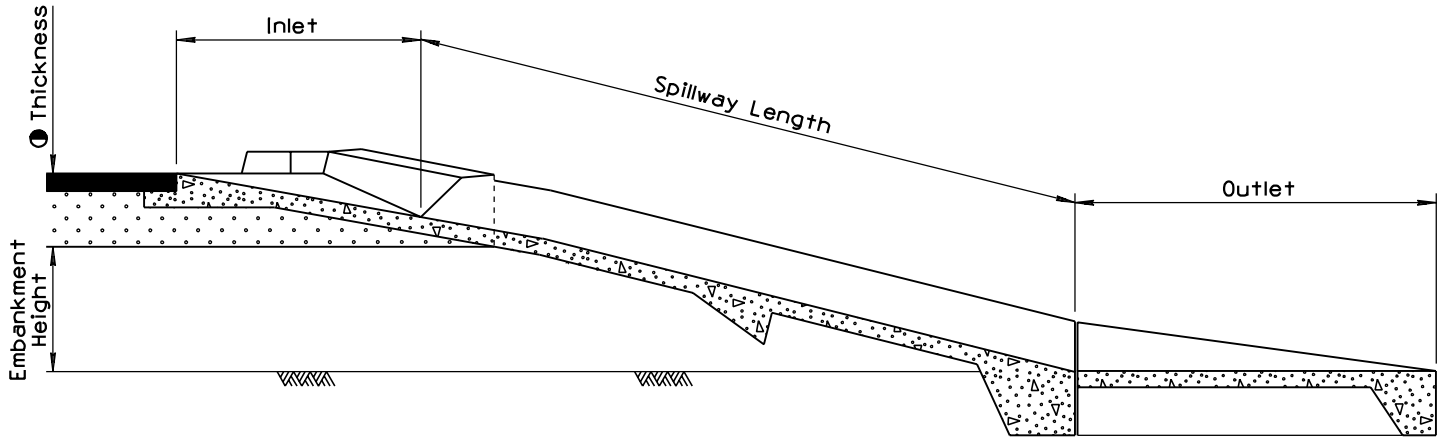
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	DOWNDRAIN, EMBANKMENT	DRAWING NO. C-04.20

NO.	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			

①

LENGTH OF SPILLWAY (Ft)																																	
Thickness (In) ●	Embankment Height (Ft)																																
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32					
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13	33	38	44	50	50	51	51	52	52	52	53	53	53	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61					
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19	36	41	47	53	53	54	54	55	55	56	56	56	57	57	58	58	58	59	59	60	60	61	61	62	62	63	63	64					
20	36	41	47	53	54	54	55	55	56	56	56	57	57	58	58	58	59	59	60	60	61	61	62	62	63	63	64	64					
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22	37	42	48	54	55	55	56	56	57	57	57	58	58	59	59	59	60	60	61	61	62	62	63	63	64	64	65	65					
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36	44	49	55	61	62	62	63	63	64	64	64	65	65	66	66	66	67	67	68	68	69	69	70	70	71	71	72	72					

C-02.10 AND C-02.20 SLOPES



①

LENGTH OF SPILLWAY (Ft)													
Thickness (In) ●	Embankment Height (Ft)												
	5	6	7	8	9	10	11	12	13				
12	22	22	22	23	23	24	24	24	25				
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14	22	23	23	23	24	24	25	25	26				
15	23	23	23	24	24	25	25	25	26				
16	23	23	24	24	24	25	25	26	26				
17	23	24	24	24	25	25	26	26	27				
18	24	24	25	25	25	26	26	27	27				
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20	25	25	25	25	26	26	27	27	28				
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22	25	25	26	26	27	27	27	28	28				
23	26	26	26	26	27	27	28	28	29				
24	26	26	26	27	27	28	28	29	29				
25	26	27	27	27	28	28	28	29	29				
26	27	27	27	28	28	28	29	29	30				
27	27	27	28	28	28	29	29	30	30				
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33	29	29	30	30	30	31	31	32	32				
34	29	30	30	30	31	31	32	32	33				
35	30	30	30	31	31	31	32	32	33				
36	30	30	31	31	31	32	32	33	33				

C-02.30 SLOPES

GENERAL NOTES

- For C-02.10 slopes with embankment height over 24', use length for 24' embankment height from table + 2'.
- For C-02.20 slopes with embankment height over 32', use length for 32' embankment height from table + 2'.
- For C-02.30 slopes with embankment height over 13', use length for 13' embankment height from table + 2'.
- For spillway details, see Std Dwg C-04.10.

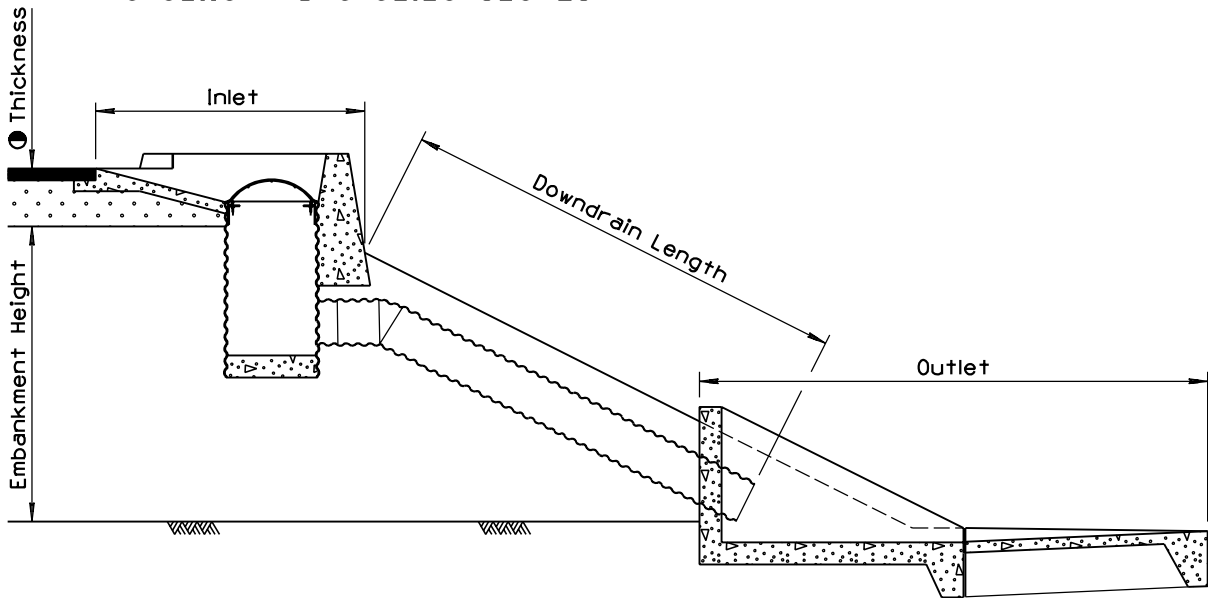
APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	SPILLWAY LENGTH TABLE	DRAWING NO. C-04.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	/04
2			
3			
4			

①

LENGTH OF DOWNDRAIN (F+)																																	
Thickness (In) ●	Embankment Height (F+)																																
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16	34	40	48	48	48	48	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	60	60							
17	34	42	48	48	50	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	60	60	60							
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21	36	44	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	60	60	60	62	62	62							
22	38	44	50	50	52	52	54	54	54	54	54	56	56	56	56	58	58	58	58	60	60	60	62	62	62	62							
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30	42	48	54	54	56	56	58	58	58	58	60	60	60	60	62	62	62	62	64	64	64	64	66	66	66	66							
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35	44	50	58	58	58	58	60	60	60	62	62	62	62	64	64	64	64	66	66	66	66	68	68	68	70	70							
36	44	50	58	58	60	60	60	60	62	62	62	62	64	64	64	64	66	66	66	66	68	68	68	68	70	70							

C-02.10 AND C-02.20 SLOPES



①

LENGTH OF DOWNDRAIN (F+)													
Thickness (In) ●	Embankment Height (F+)												
	5	6	7	8	9	10	11	12	13				
12	14	16	16	16	20	20	20	20	20				
13	14	16	16	18	20	20	20	20	22				
14	14	16	18	18	20	20	20	20	22				
15	14	18	18	18	20	20	20	22	22				
16	16	18	18	18	20	20	22	22	22				
17	16	18	18	18	20	22	22	22	22				
18	16	18	18	18	22	22	22	22	22				
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34	22	24	24	24	26	28	28	28	28				
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36	22	24	24	26	28	28	28	28	30				

C-02.30 SLOPES

GENERAL NOTES

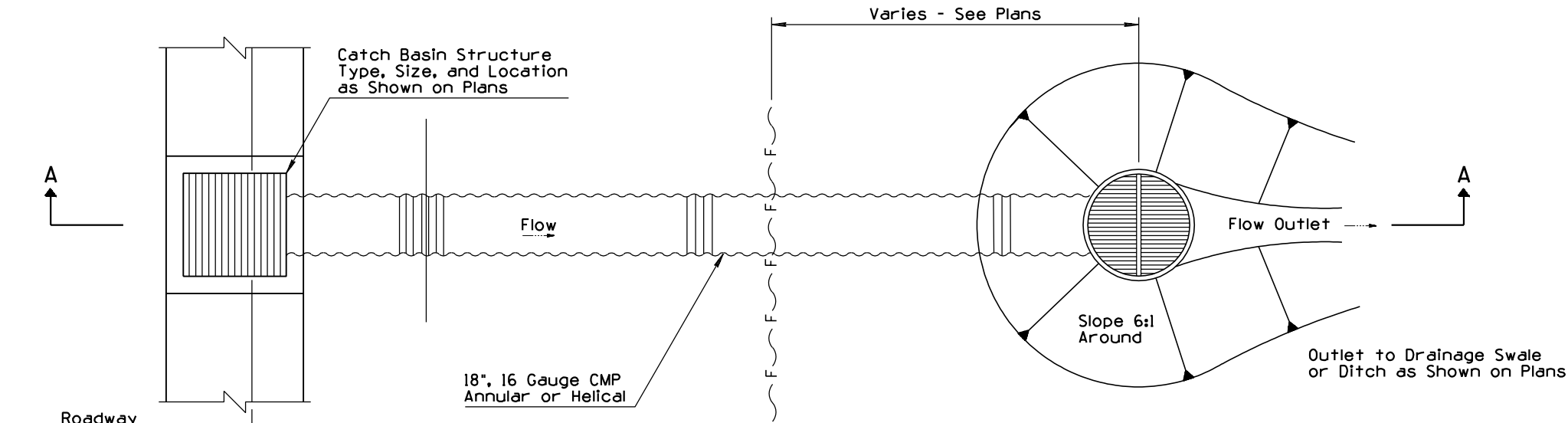
- For C-02.10 slopes with embankment height over 24', use length for 24' embankment height from table + 2'.
- For C-02.20 slopes with embankment height over 32', use length for 32' embankment height from table + 2'.
- For C-02.30 slopes with embankment height over 13', use length for 13' embankment height from table + 2'.
- For down drain details, see Std Dwg C-04.20.

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DOWNDRAIN LENGTH TABLE	DRAWING NO. C-04.40

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED PLAN & SECTION VIEW	RLF	9/04
2	ADDED NEW GENERAL NOTE	RLF	9/04
3			
4			

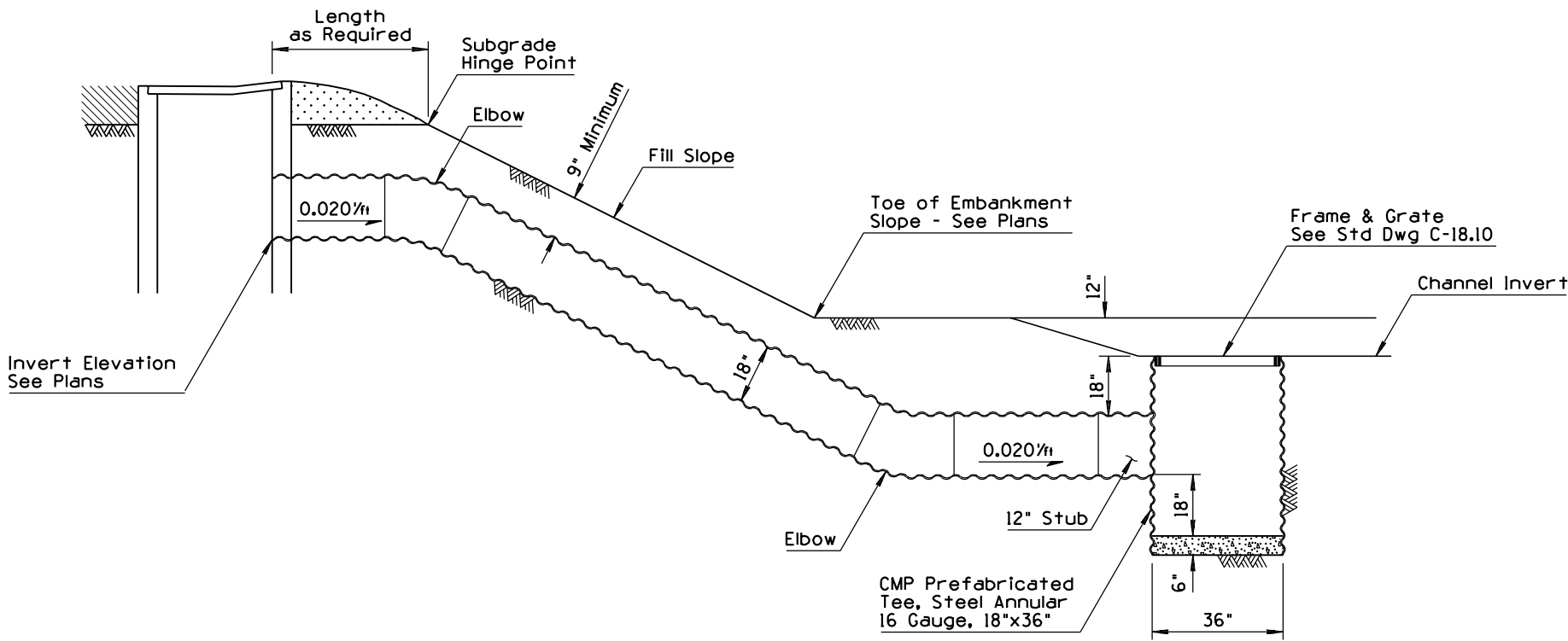
GENERAL NOTES

1. Stub shall have annular corrugation. Downdrain piping beyond stub may be either annular or helical.
2. Couplings shall be mechanical heat-shrinkable polyolatin sheet; one piece lap type neoprene sheet or slip seam; all 12" minimum width and 18 gauge minimum.
3. Maximum Q Allowable = 8 cfs
Minimum V Allowable = 1 fps
- ② 4. Concrete shall be Class B.



PLAN

①

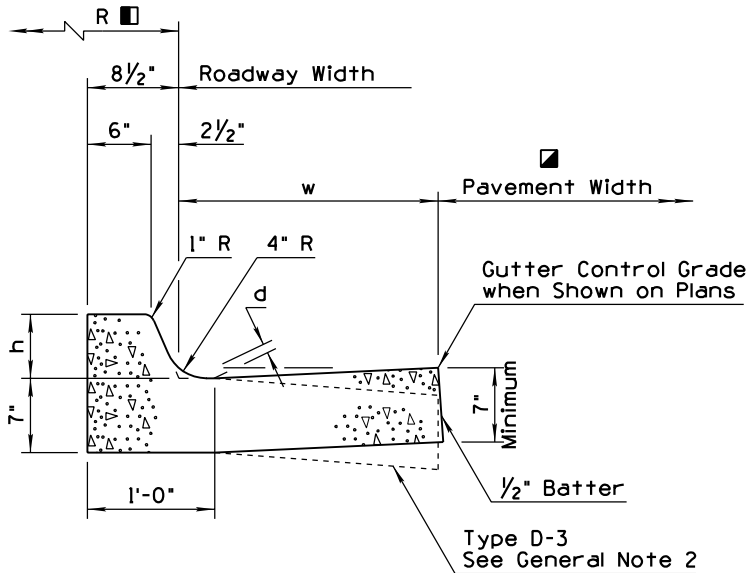


SECTION A-A

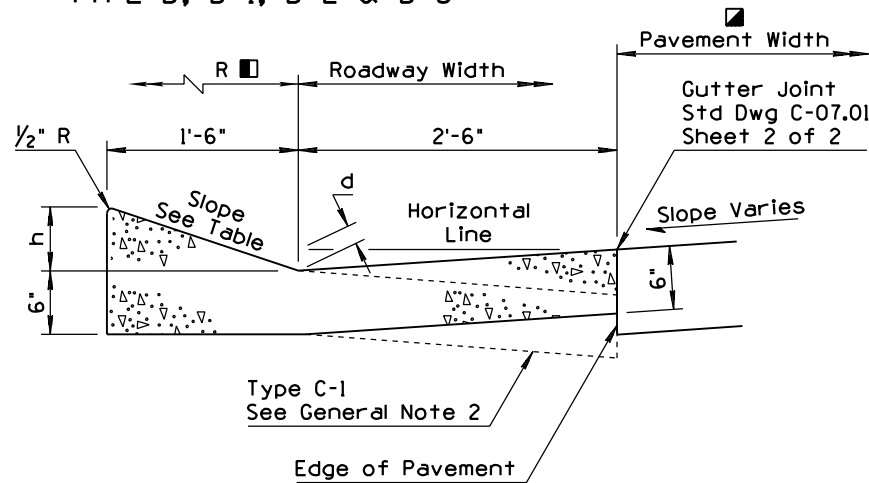
①

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DOWNDRAIN ENERGY DISSIPATOR	DRAWING NO. C-04.50

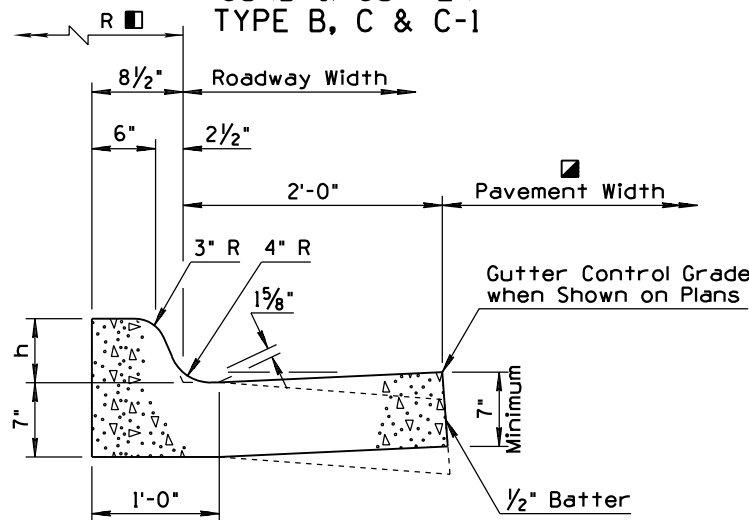
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE	RLF	9/04
2	ADDED DEPRESSED CURB & GUTTER	RLF	9/04
3	MODIFIED EMBANKMENT CURB VIEW	RLF	9/04
4			



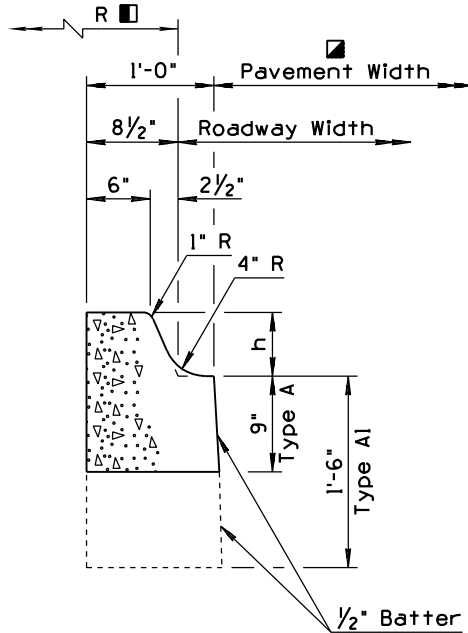
CURB & GUTTER
TYPE D, D-1, D-2 & D-3



CURB & GUTTER
TYPE B, C & C-1

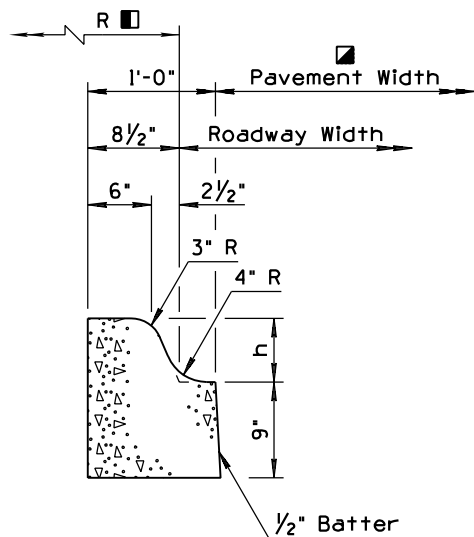


CURB & GUTTER
TYPE G



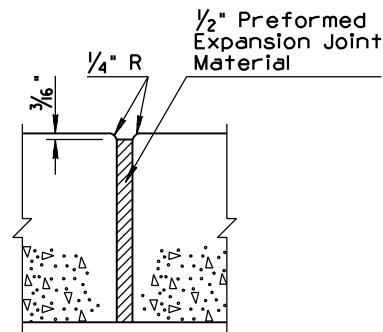
SINGLE CURB
TYPE A & A1

URBAN FREEWAY CURB & GUTTER			
Curb & Gutter Type	Curb Height h (In)	Slope	Gutter Depression d (In)
B	6	3:1	2
C	3	6:1	5/8
C-1	3	6:1	N/A

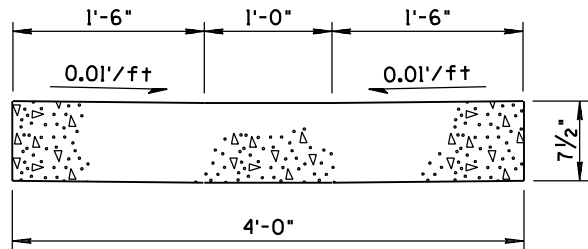


SINGLE CURB
TYPE G

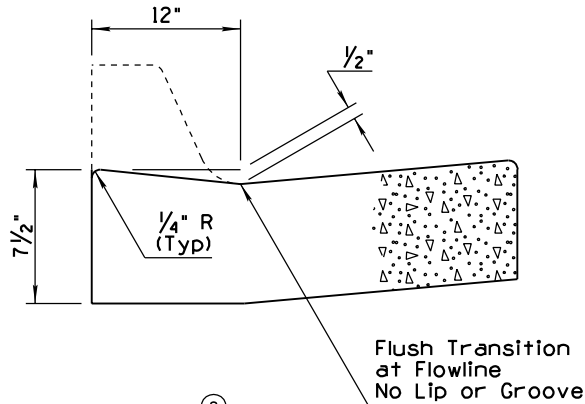
Curb & Gutter Type	Curb Height h (In)	Gutter Width w (Ft-In)	Gutter Depression d (In)
A	①	N/A	N/A
A-1	①	N/A	N/A
D	①	2-0	1 5/8
D-1	①	2-6	1 3/4
D-2	①	4-6	1 3/4
D-3	①	2-0	N/A
G	①	2-0	N/A



EXPANSION JOINT DETAIL



VALLEY GUTTER



DEPRESSED CURB
& GUTTER

GENERAL NOTES

SINGLE CURB AND CURB & GUTTER

- Single curb and curb & gutter may be constructed by the use of forms or the concrete may be extruded.
- When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the gutter depression is not applicable.
- Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- Expansion joints shall be located at tangent points in curb returns, at structures and at maximum 60' intervals. The 1/2" joint filler shall extend the full depth of the concrete.
- Concrete shall be finished with a steel trowel followed by brushing with a fine brush along the length of the curb and gutter.
- All exposed edges and hand-tooled joints shall be finished with a tool having a 1/4" radius, or as noted on the plans.

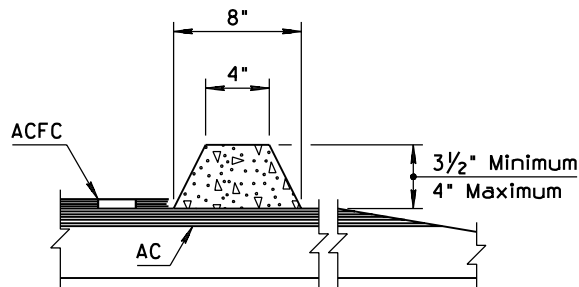
■ See Plans

① See Plans (6 or 7 Inch typical)

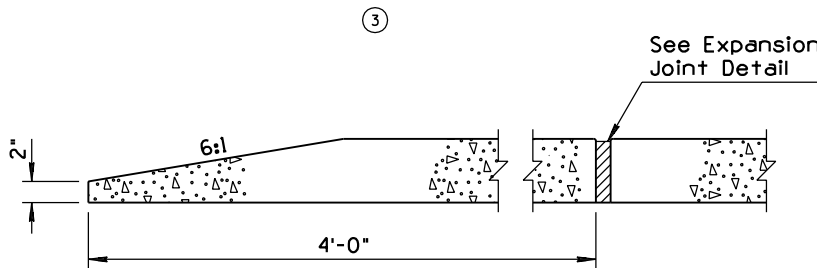
■ Curb Radius when shown on plans

EMBANKMENT CURB

- No additional finishing will be required after extrusion or removal of the forms when the curb presents a neat appearance and the surface is uniform in texture and color.
- The curb shall conform to the cross section as shown except that the horizontal dimensions shall not vary more than 1/2".



EMBANKMENT CURB

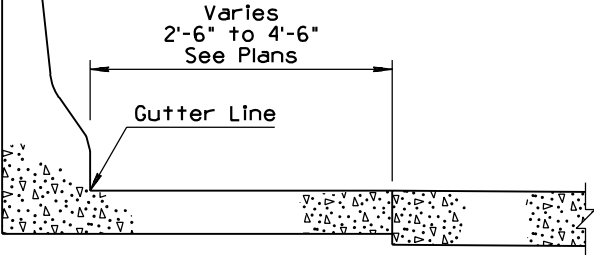


CURB TERMINAL SECTION

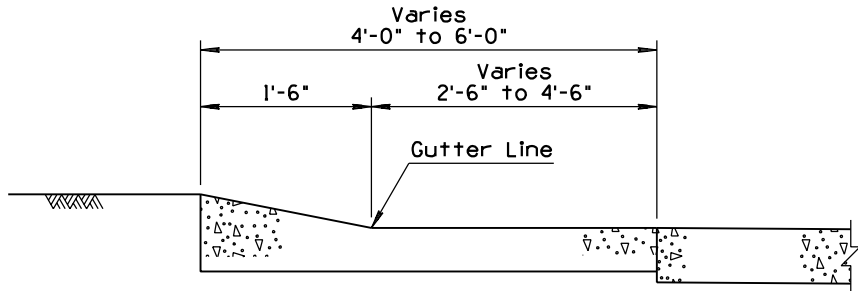
APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia</i>	CURB & GUTTER CURB GUTTER	DRAWING NO. C-05.10

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

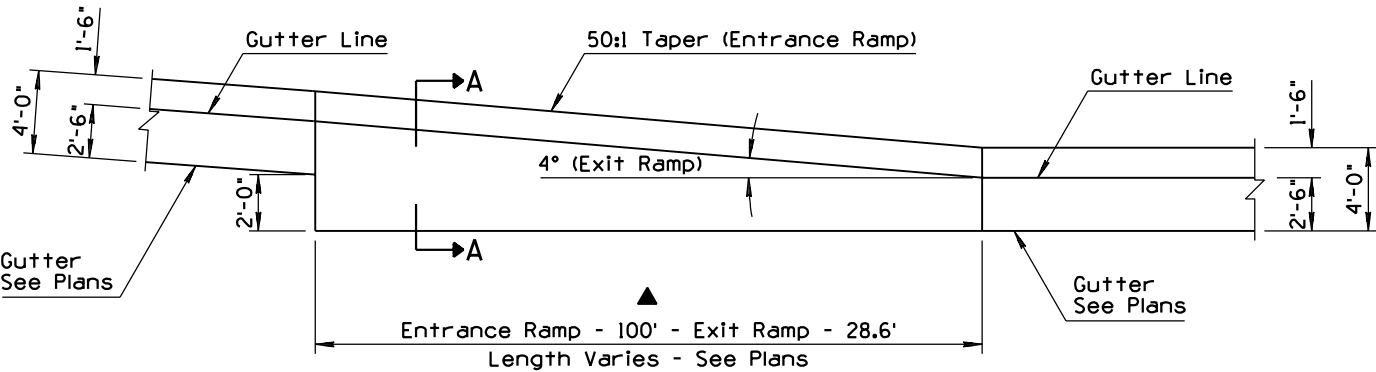
For Barrier Details
See Plans



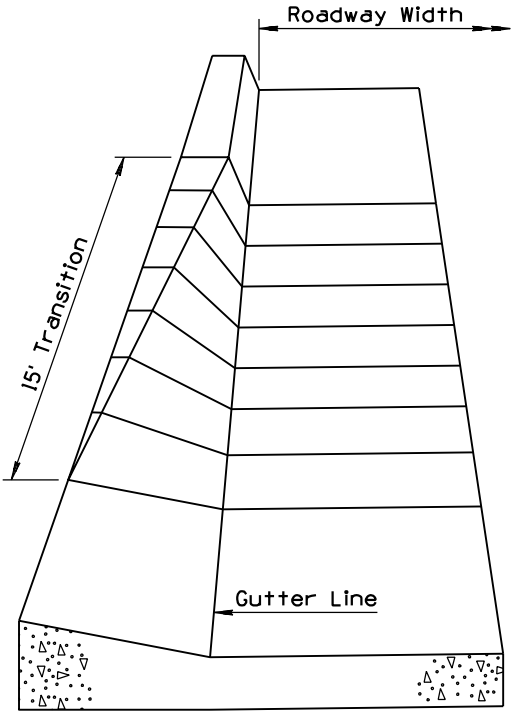
SECTION A-A
CONCRETE BARRIER
APPLICATION



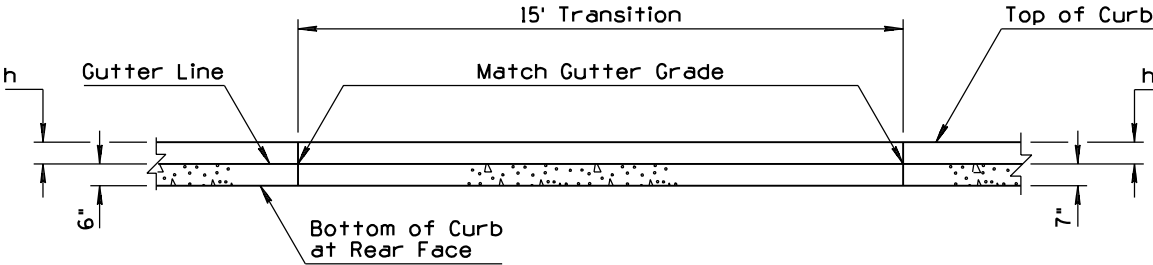
SECTION A-A
CURB & GUTTER
APPLICATION



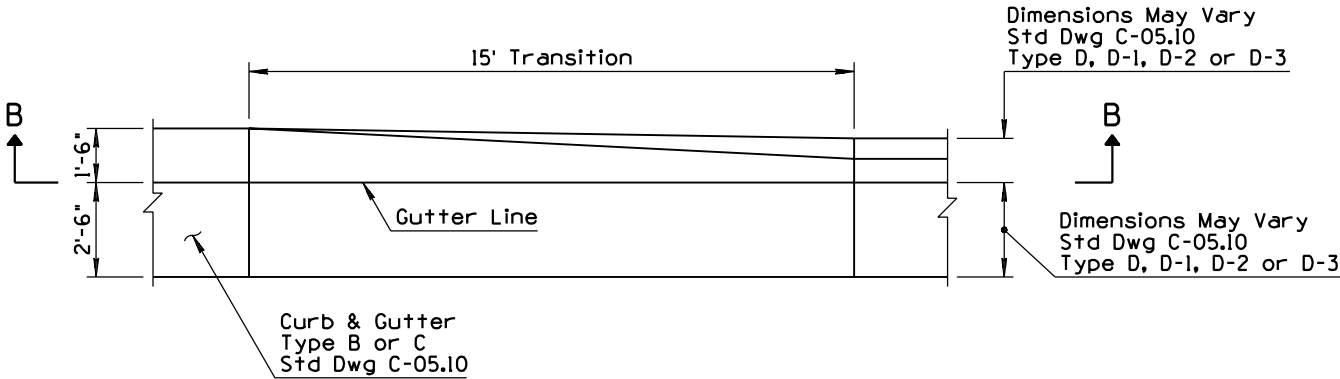
TYPE 1 - GUTTER TRANSITION - AT RAMP TAPERS



PERSPECTIVE VIEW



SECTION B-B



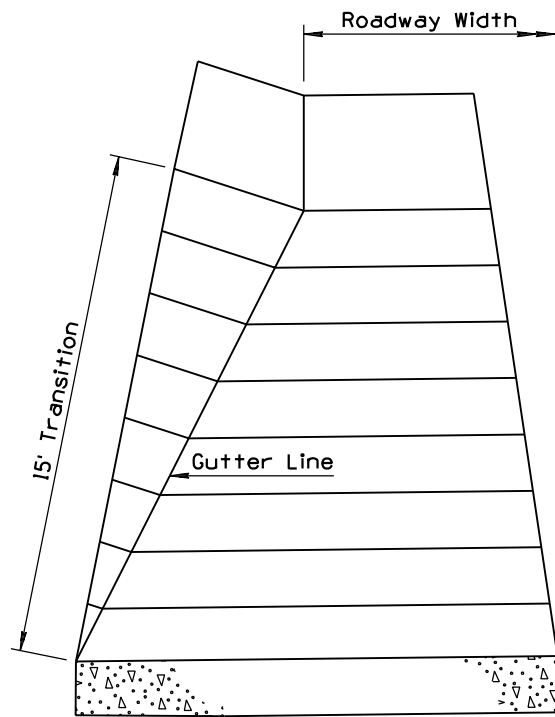
TYPE 2 - CURB & GUTTER TRANSITION

GENERAL NOTES

1. All gutter flow lines shall be constructed to an accurate grade.
 2. See Slotted Drain Std Dwgs C-13.60 and C-15.91 for curb & gutter with slotted drain.
 3. See Std Dwg C-05.10 for additional general notes and dimensions.
 4. See Std Dwg C-07.04 for typical curb and gutter transition locations.
- ▲ Dimension May Vary Where Exit Occurs on Curves, See Plans

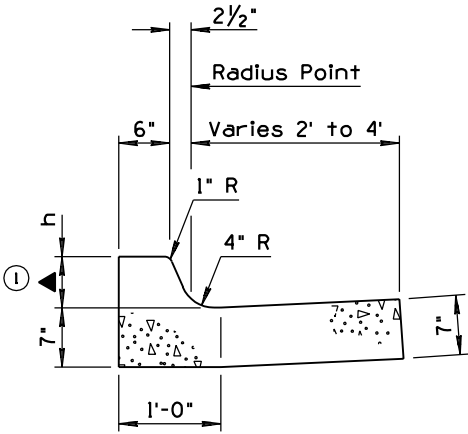
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CURB & GUTTER TRANSITIONS	DRAWING NO. ① C-05.12 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED SECTION A-A	PNB	7/94
2	ADDED JOINT REQUIREMENT	PNB	7/94
3			
4			

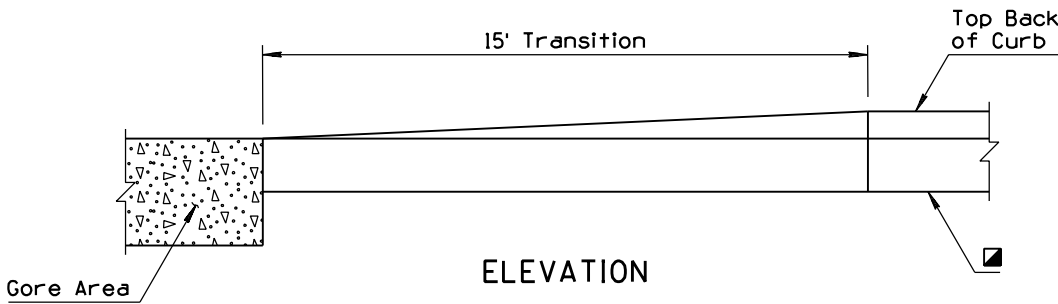


PERSPECTIVE VIEW

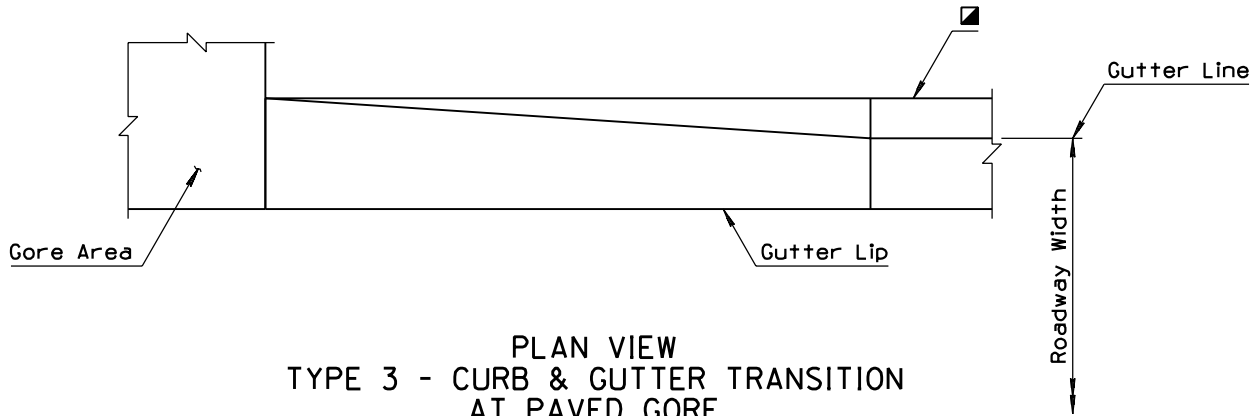
▲ Curb Height Varies 0" to 7" Maximum in Depressed Curb Area Beyond the End of Barrier. See Plans for Curb Height.



SECTION A-A

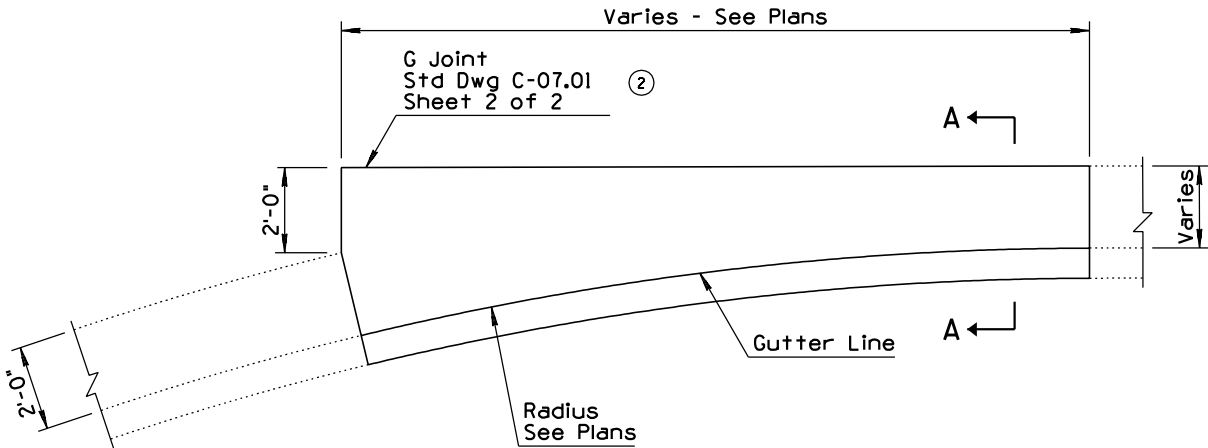


ELEVATION



PLAN VIEW
TYPE 3 - CURB & GUTTER TRANSITION
AT PAVED GORE

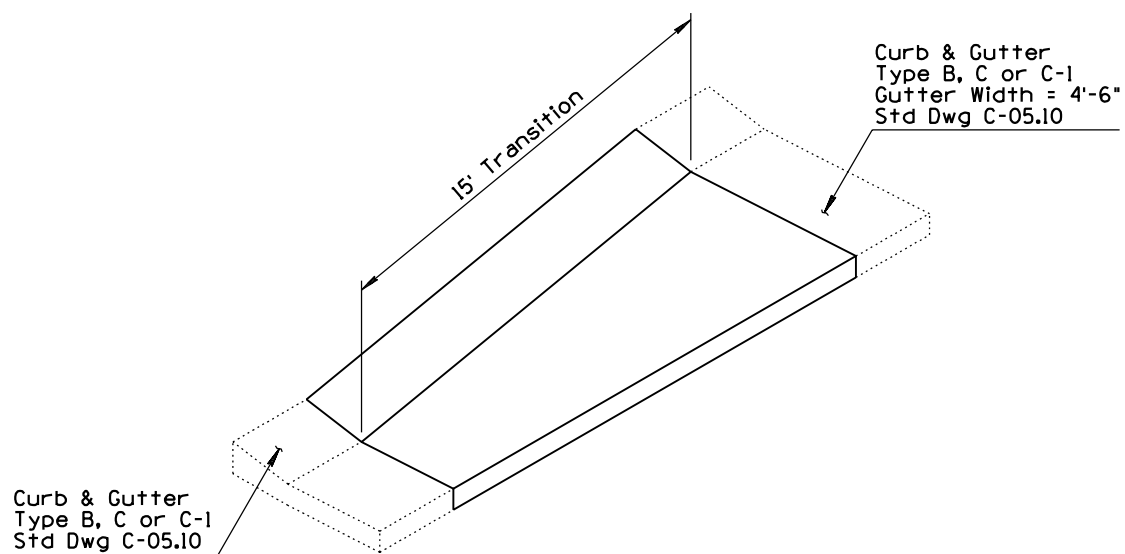
■ Curb & Gutter
Type B, C, C-1, D, D-1, D-2 or D-3



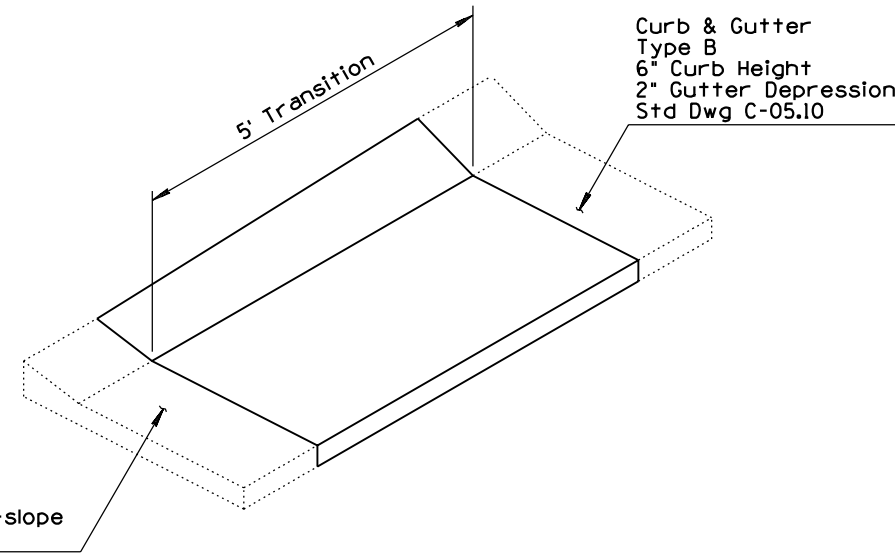
TYPE 4 - CURB & GUTTER TRANSITION

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CURB & GUTTER TRANSITIONS	DRAWING NO. C-05.12 Sheet 2 of 3

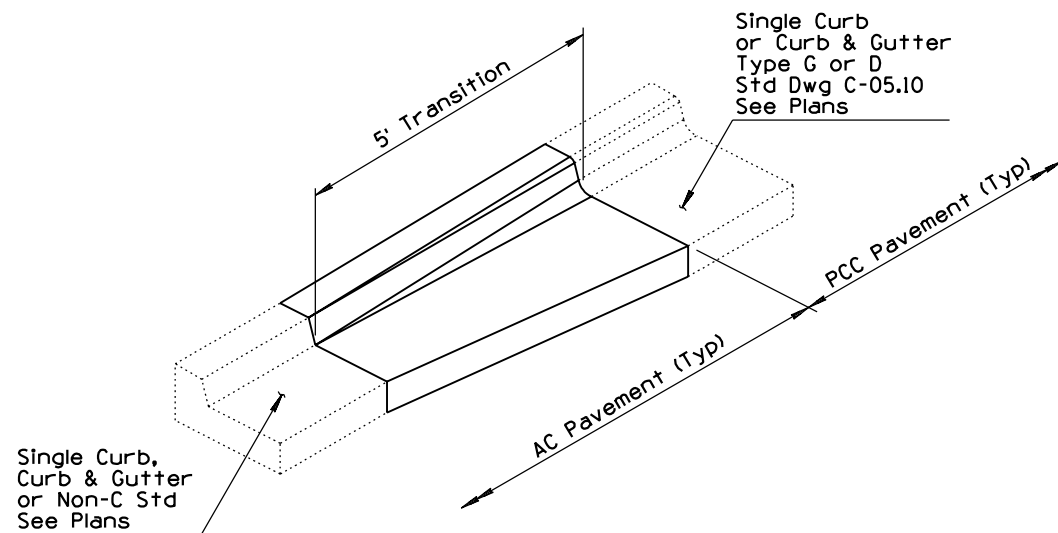
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD	RLF	9/04
2			
3			
4			



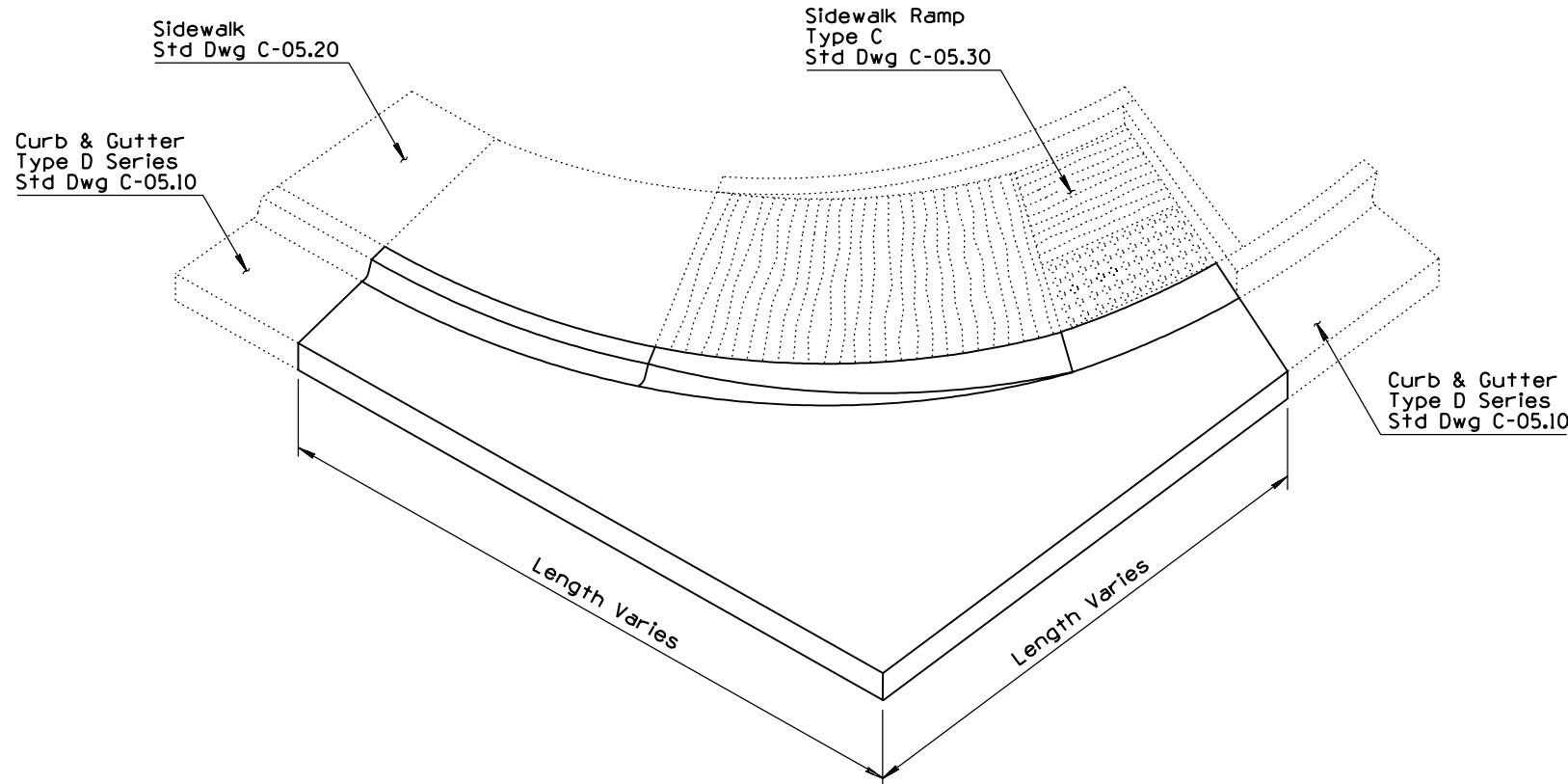
TYPE 5 - CURB & GUTTER TRANSITION



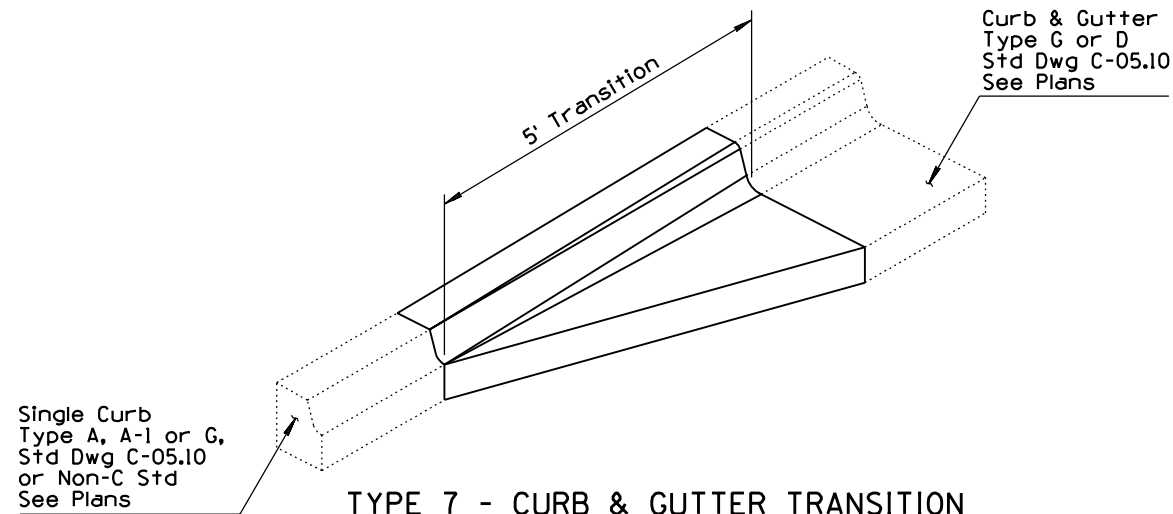
TYPE 8 - CURB & GUTTER TRANSITION



TYPE 6 - SINGLE CURB OR CURB & GUTTER TRANSITION
(Curb & Gutter Shown)



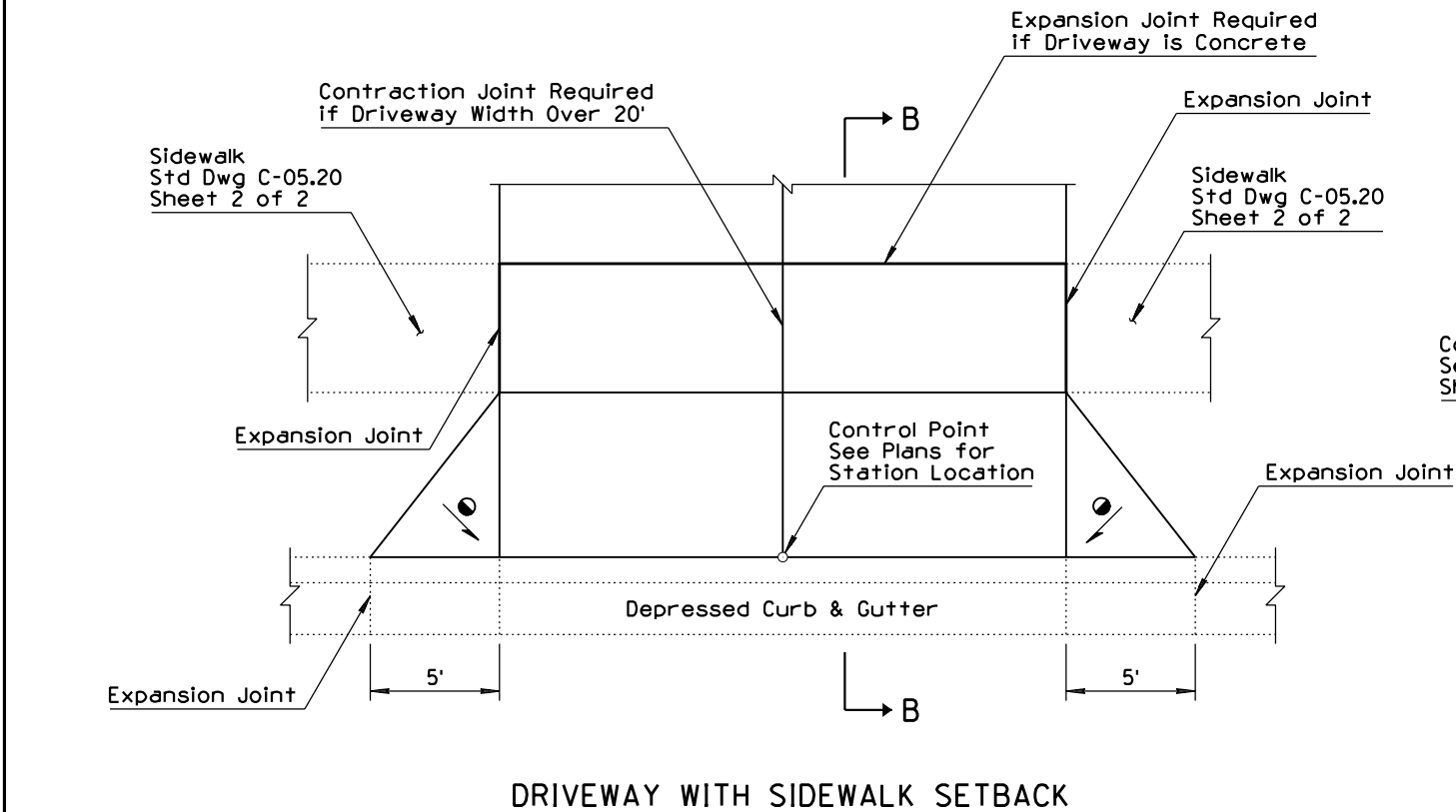
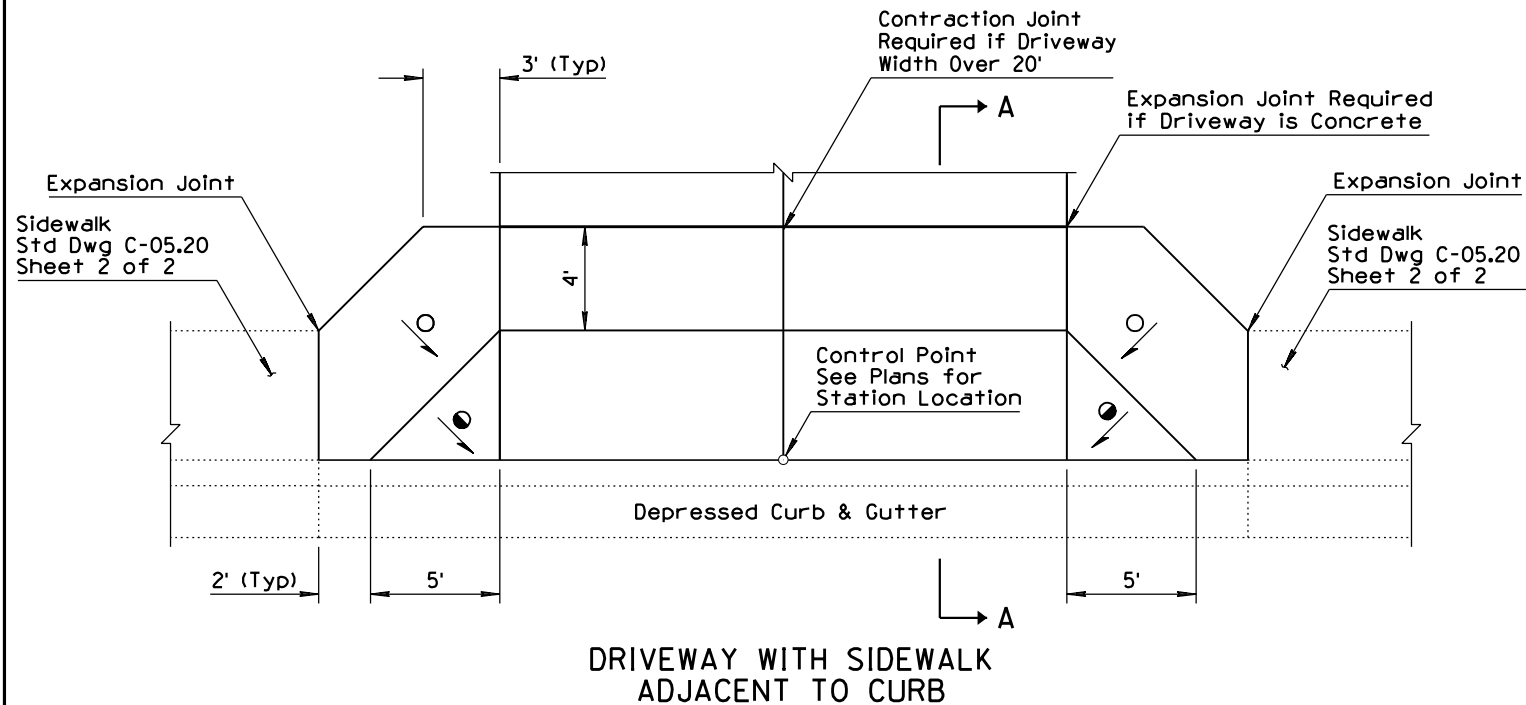
TYPE 9 - CURB & GUTTER TRANSITION



TYPE 7 - CURB & GUTTER TRANSITION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CURB AND GUTTER TRANSITIONS	DRAWING NO. ① C-05.12 Sheet 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

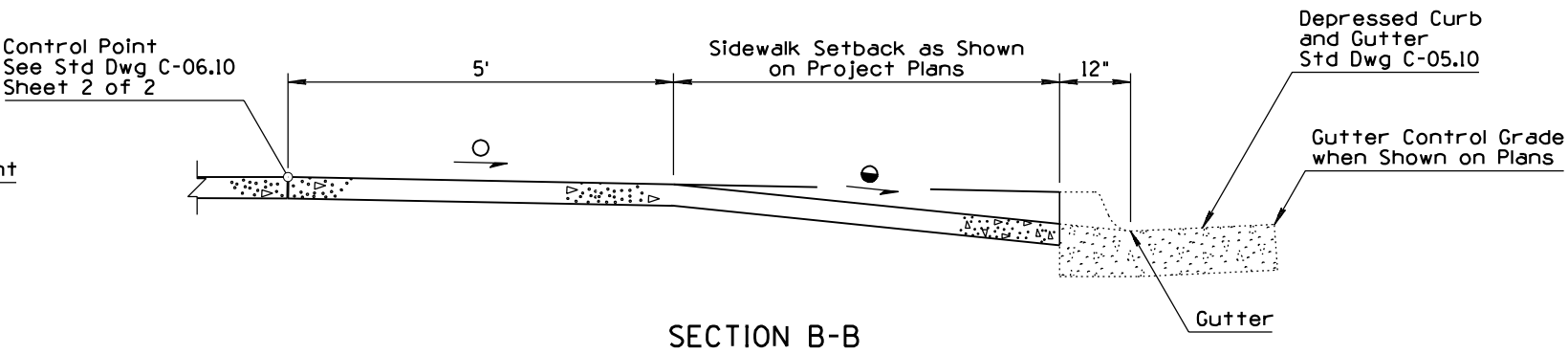
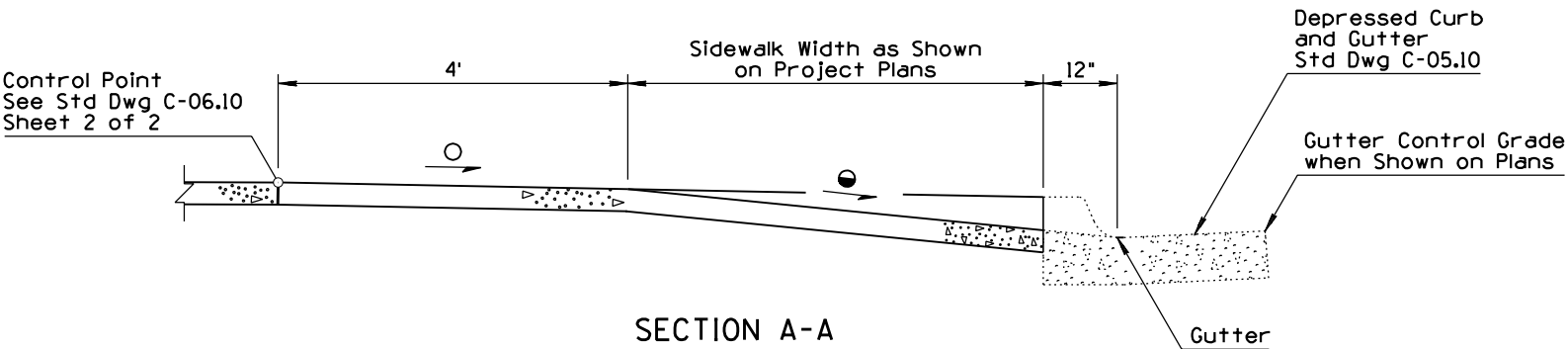


GENERAL NOTES

1. Unless otherwise specified, driveways shall be 6" thick.
2. Two-inch deep transverse contraction joints shall be placed in driveways if the driveway width is over 20'. If the driveway thickness is greater than 6", then the contraction joint depth shall be $T/3$, where T is the thickness of the driveway. Joints shall be either formed or sawn. Formed joints shall be finished with a tool having a $1/4"$ radius. See Sheet 2 of 2 for the Contraction Joint Detail.
3. Expansion joints shall be located between driveways and sidewalks and all abutting structures. The $1/2"$ joint filler shall extend the full depth of the concrete. See Sheet 2 of 2 for the Expansion Joint Detail.
4. Concrete shall be finished by means of a float, then steel trowelled and then broomed with a fine brush in a transverse direction.

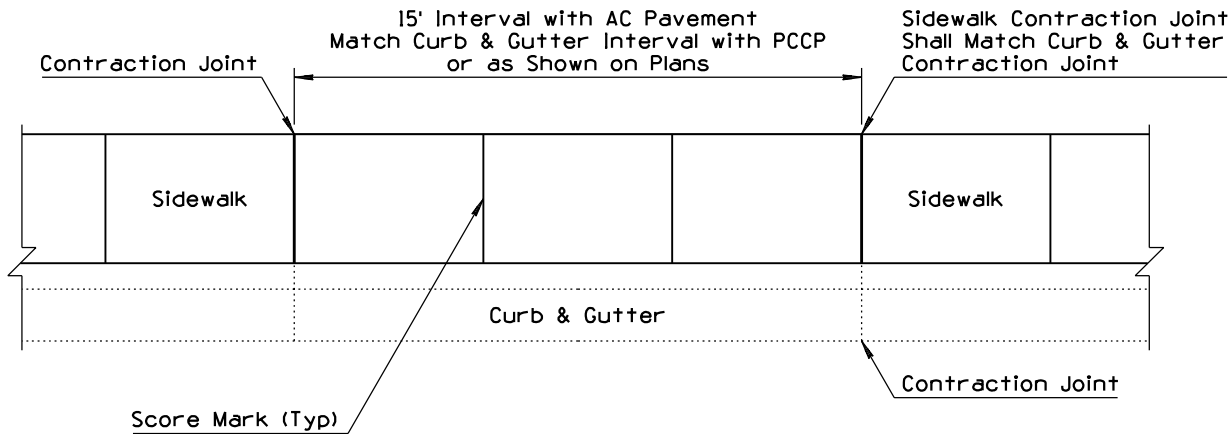
LEGEND

- Minimum slope = 0.01' Per Ft
- ➔ Maximum slope = 0.02' Per Ft
- Straight grade with downward slope

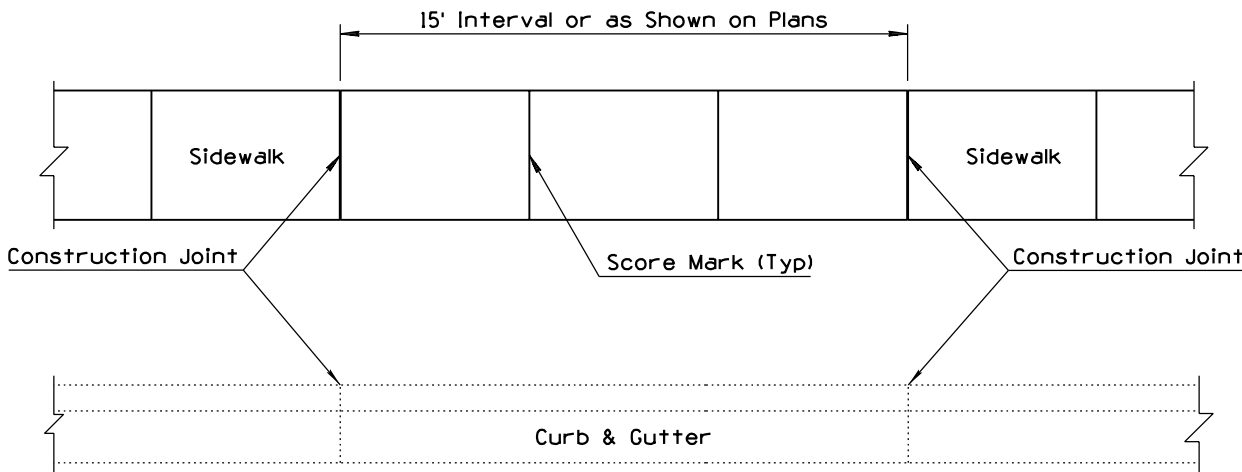


APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE DRIVEWAYS & SIDEWALKS DRIVEWAYS	DRAWING NO. C-05.20 Sheet 1 of 2

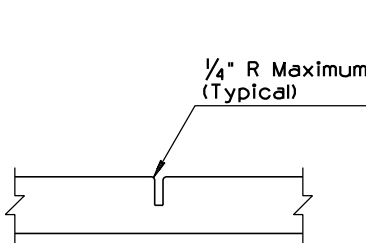
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW GENERAL NOTE 5, REARRANGED 3, 4 & 5	RLF	9/04
2			
3			
4			



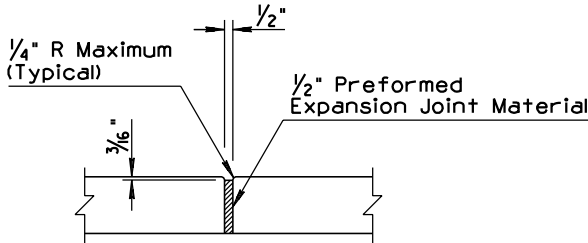
SIDEWALK ADJACENT TO CURB



SIDEWALK SETBACK FROM CURB



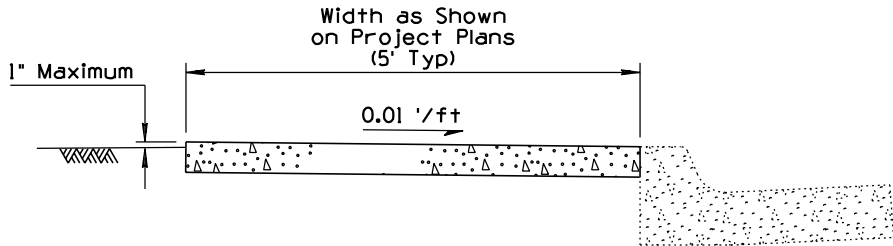
CONTRACTION JOINT DETAIL



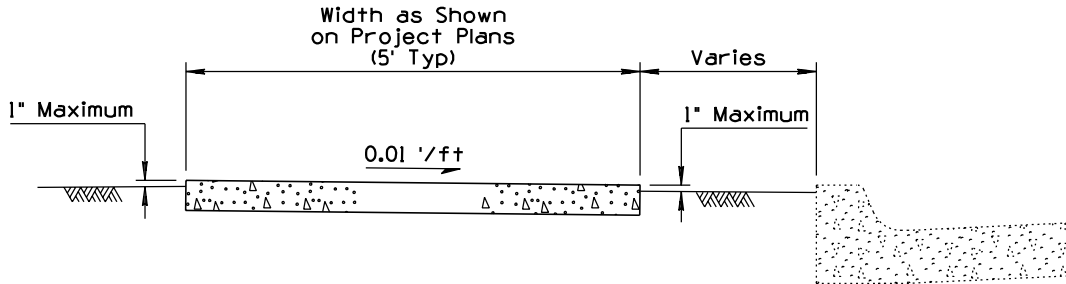
EXPANSION JOINT DETAIL

① GENERAL NOTES

1. Unless otherwise specified, sidewalks shall be 4" thick.
2. One-inch deep transverse contraction joints shall be placed in sidewalks at intervals of approximately 15' or at a spacing that matches adjacent curb and gutter. If the sidewalk is over 7' in width, a 2" deep longitudinal contraction joint shall be placed in the center of the sidewalk. The maximum area of sidewalk without contraction joints or scoring lines shall be approximately 36 square feet. Joints shall be either formed or sawn. Formed joints shall be finished with a tool having a 1/4" radius.
3. Score marks shall be 1/4" in depth. They shall be placed at 5' spacing when the contraction joint interval is 15' and at 6' spacing when the contraction joint interval is 12'.
4. Expansion joints shall be located between sidewalks and driveways and all abutting structures. Expansion joints shall match the joints in the adjacent concrete pavement or existing concrete curb and sidewalk. Maximum length of sidewalk without an expansion joint shall be 60 transverse feet. The 1/2" joint filler shall extend the full depth of the concrete.
5. Concrete shall be finished by means of a float, then steel trowelled and then broomed with a fine brush in a transverse direction.



CONCRETE SIDEWALK ADJACENT TO CURB

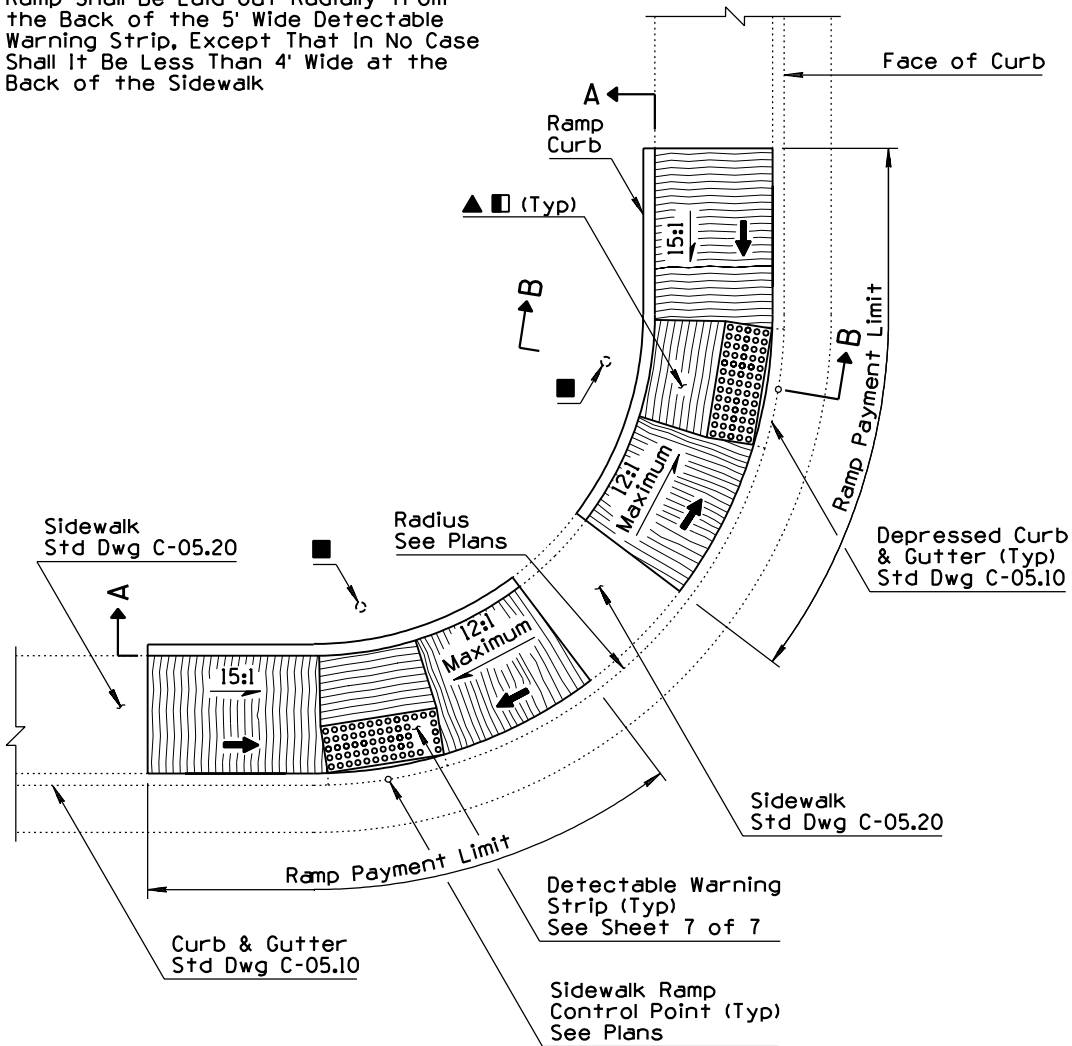


CONCRETE SIDEWALK SETBACK FROM CURB

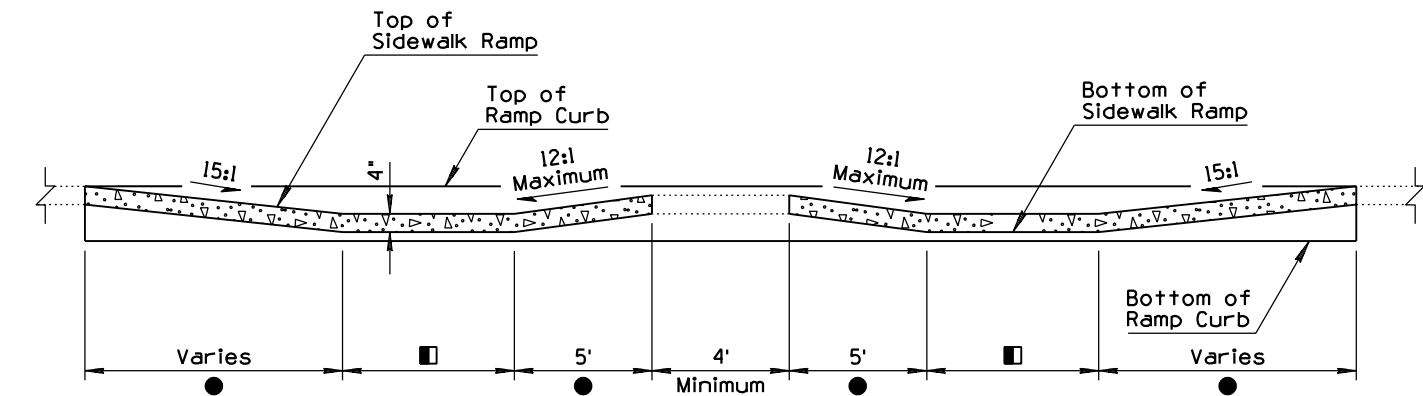
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE DRIVEWAYS & SIDEWALKS SIDEWALKS	DRAWING NO. C-05.20 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING	RLF	9/04
2			
3			
4			

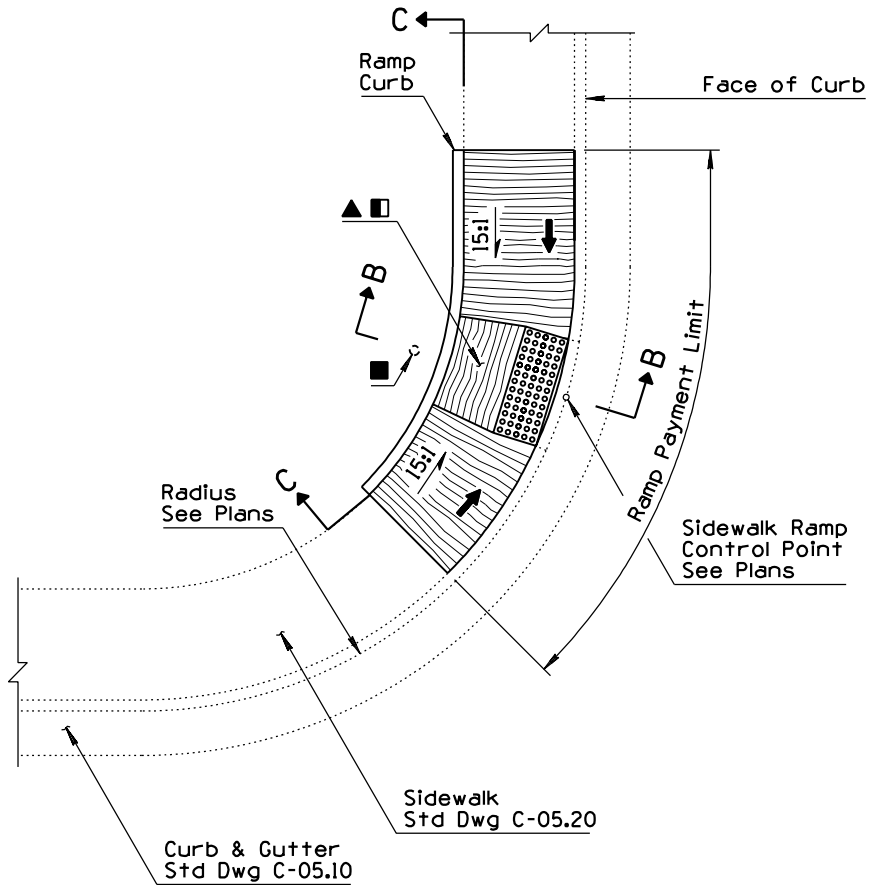
Ramp Shall Be Laid Out Radially from the Back of the 5' Wide Detectable Warning Strip, Except That In No Case Shall It Be Less Than 4' Wide at the Back of the Sidewalk



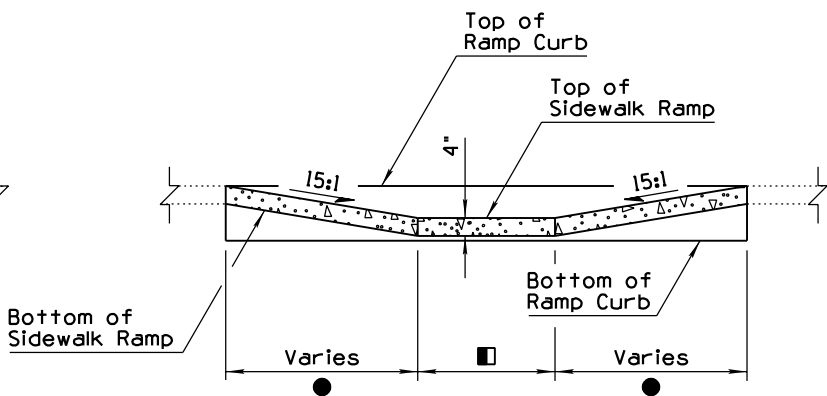
TWO CROSSING DIRECTIONS
AT CORNER



SECTION
A-A



ONE CROSSING DIRECTION
AT CORNER



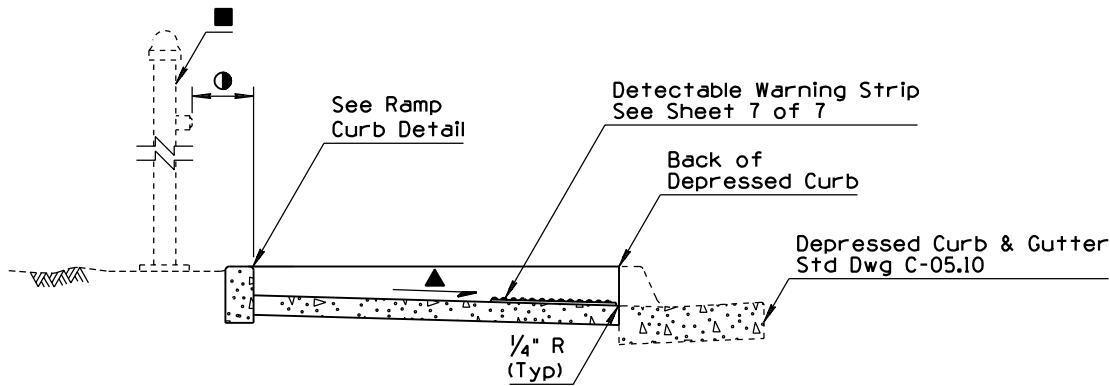
SECTION
C-C

GENERAL NOTES

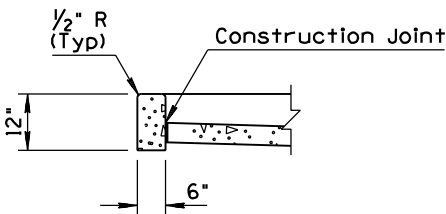
- Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
 - The ramp slopes as shown are the steepest allowed, except as provided for under Note 3.
 - Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slopes shown in Note 2.
 - Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
 - Concrete shall receive a rough broom finish as shown.
 - See Std Dwgs C-05.10 and C-05.20 for joint details.
- See Note 3
 - 10" Maximum to Face of Pedestrian Push Button
 - Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information

LEGEND

- Minimum Slope = 100:1 (0.01 '/ft)
- Maximum Slope = 50:1 (0.02 '/ft)



SECTION
B-B

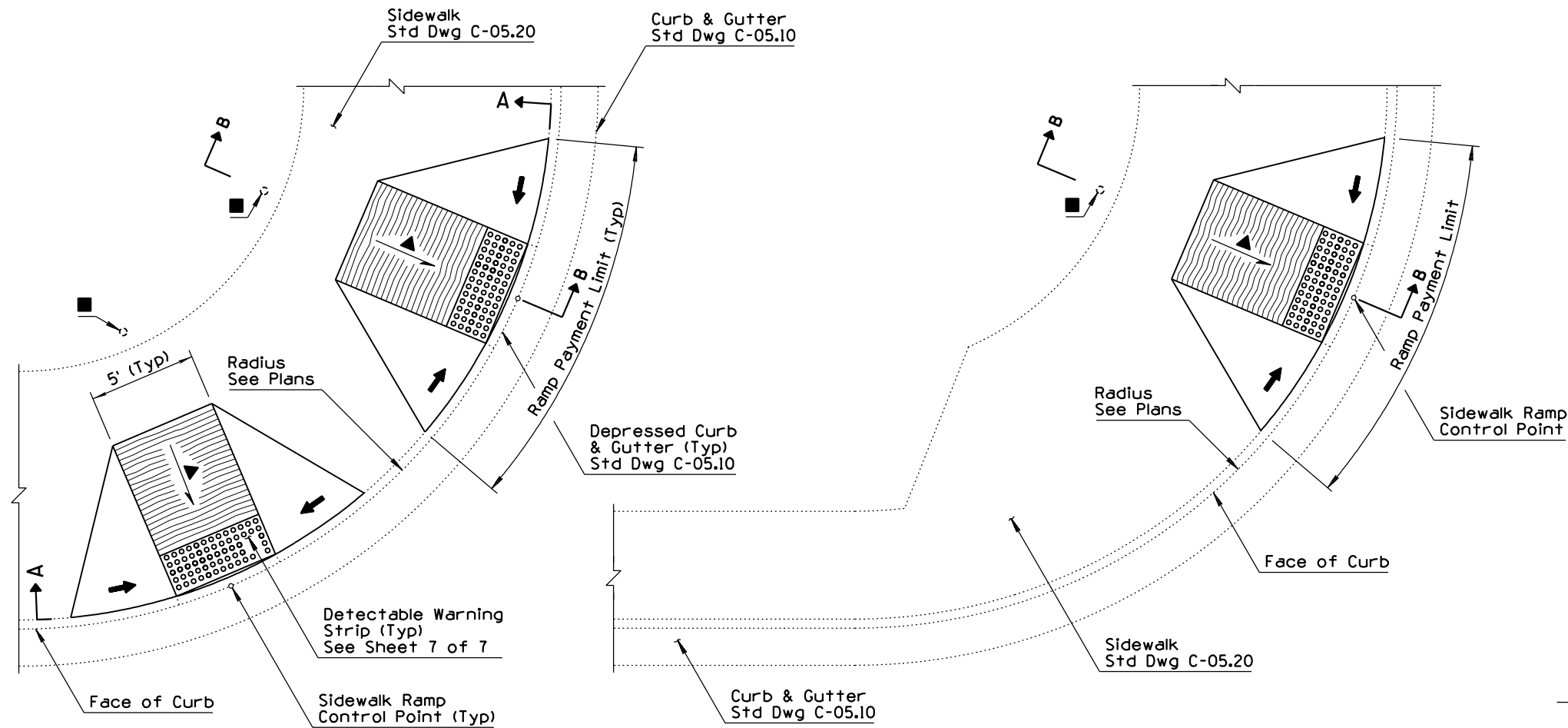


RAMP CURB DETAIL

PARALLEL SIDEWALK RAMP

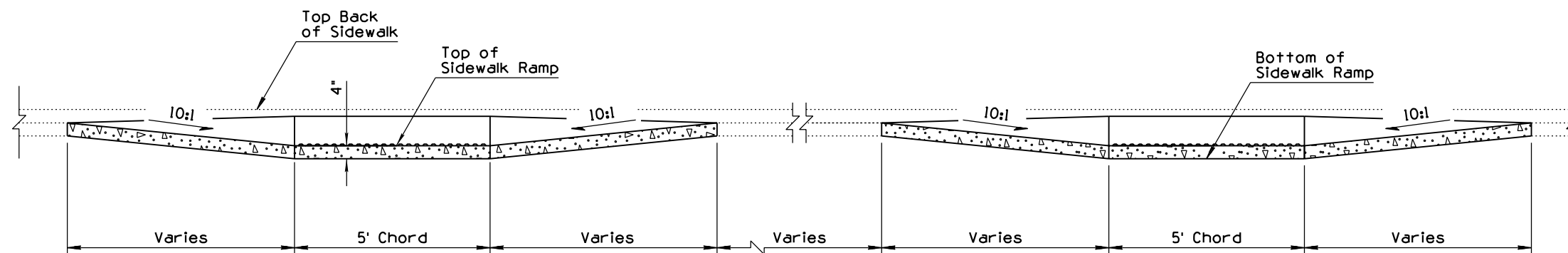
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SIDEWALK RAMP TYPE A	DRAWING NO. C-05.30 Sheet 1 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING	RLF	9/04
2			
3			
4			

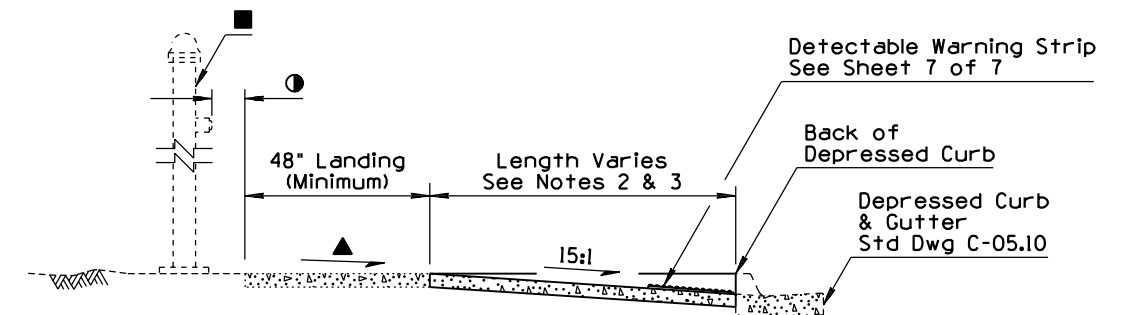


TWO CROSSING DIRECTIONS
AT CORNER

ONE CROSSING DIRECTION
AT CORNER



SECTION
A-A



SECTION
B-B

PERPENDICULAR CURB RAMP

GENERAL NOTES

1. Ramp centerline shall be radial from the face of the curb at the sidewalk ramp control point.
 2. The 10:1 wing and 15:1 ramp slopes are the steepest allowed, except as provided for under Note 3.
 3. Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slope shown in Note 2.
 4. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
 5. Concrete shall receive a rough broom finish as shown. The side slope wings do not receive a broom finish.
 6. The Engineer may approve replacing the side slope wing with a curb at a location where access to the side of a ramp run is blocked by a pole, utility box, other obstruction, or by a non-accessible surface such as a dirt planter strip.
 7. See Std Dwg C-05.10 and C-05.20 for joint details.
- Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information
- ① 10" Maximum to Face of Pedestrian Push Button

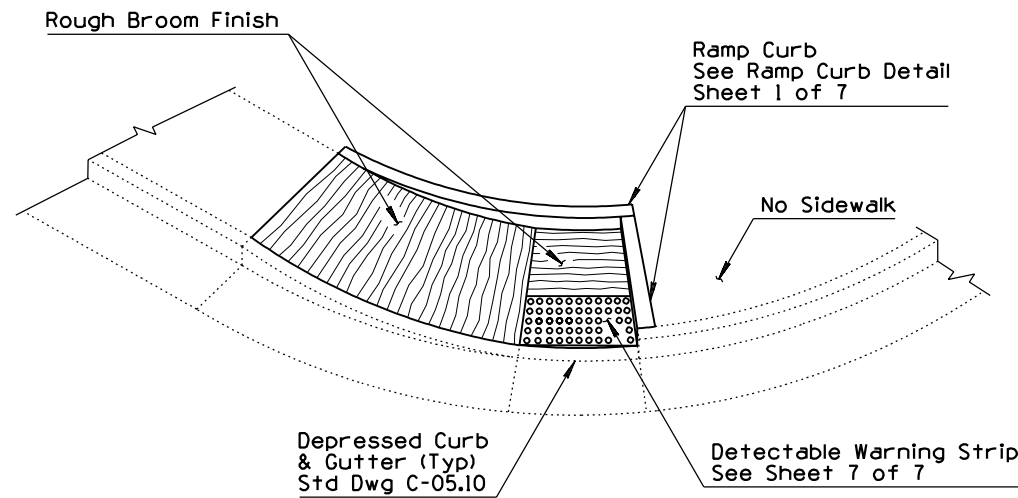
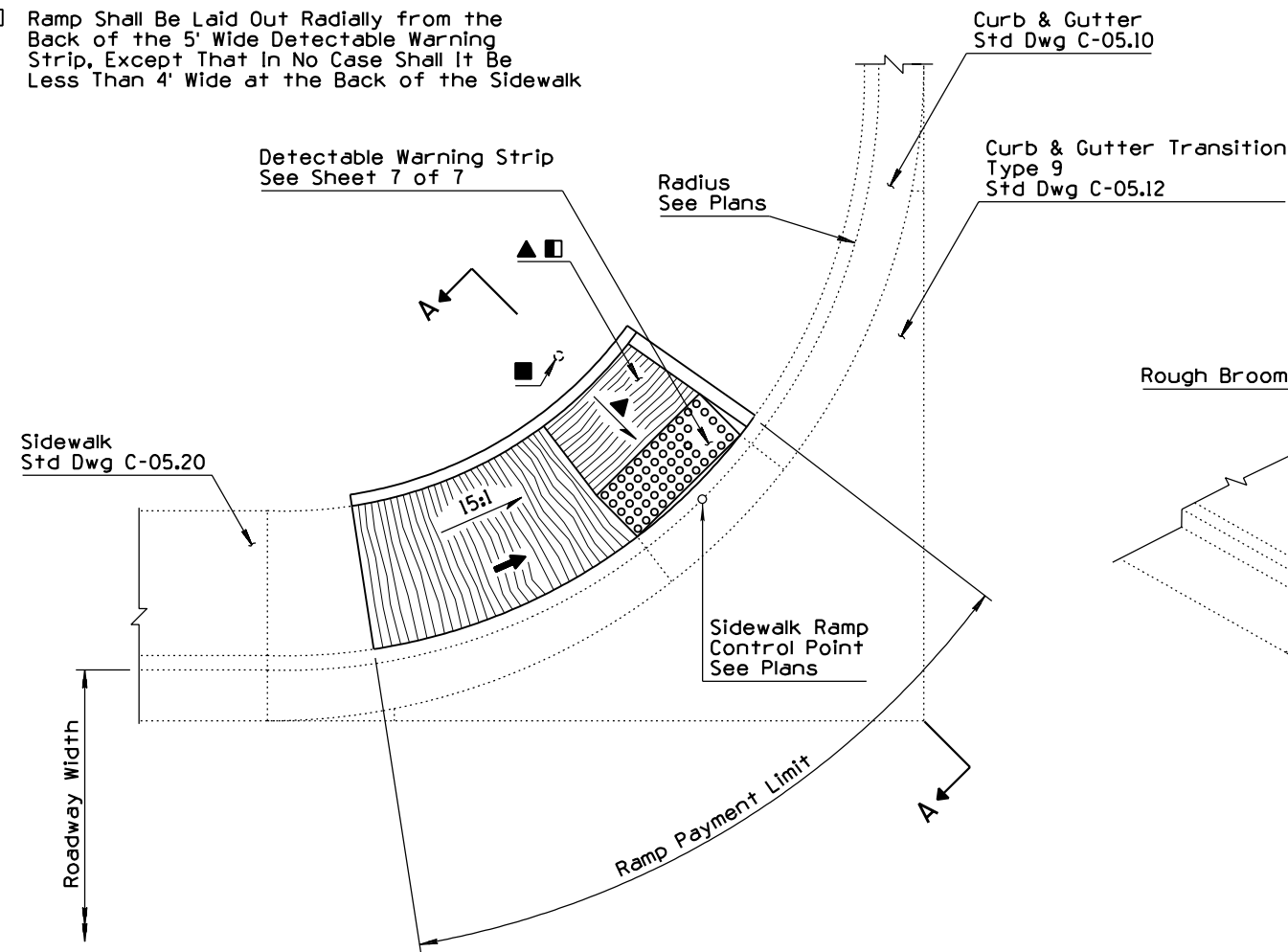
LEGEND

- ▲ Minimum Slope = 100:1 (0.01 %/ft)
- ➔ Maximum Slope = 50:1 (0.02 %/ft)

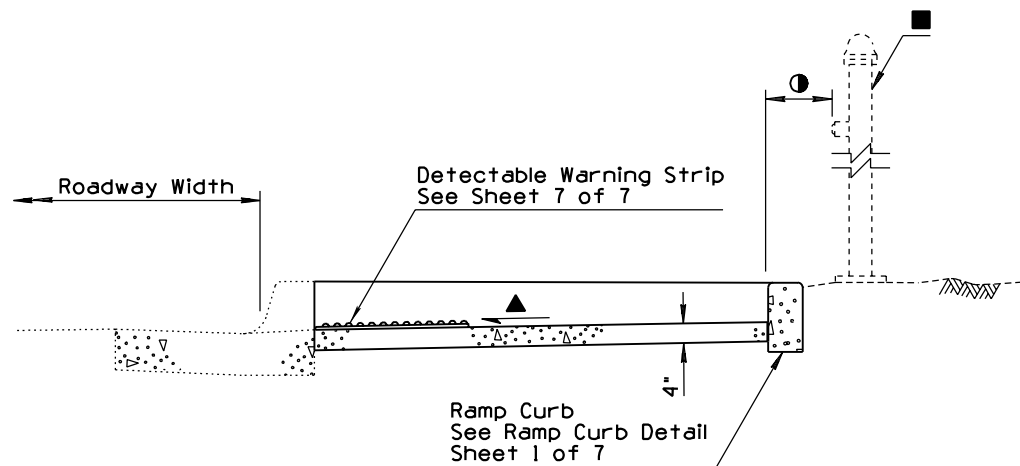
APPROVED FOR DESIGN <i>May Vipanua</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	SIDEWALK RAMP TYPE B	DRAWING NO. ① C-05.30 Sheet 2 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING AS SHEET 3 OF 7	RLF	9/04
2			
3			
4			

- Ramp Shall Be Laid Out Radially from the Back of the 5' Wide Detectable Warning Strip, Except That In No Case Shall It Be Less Than 4' Wide at the Back of the Sidewalk



PERSPECTIVE



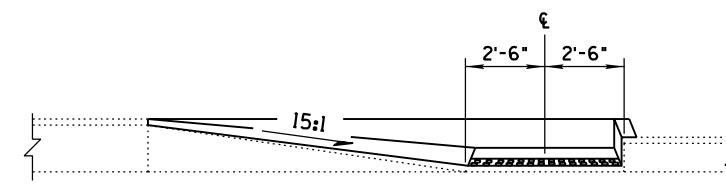
SECTION A-A

GENERAL NOTES

1. For use where sidewalk is not continuous.
 2. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
 3. The 15:1 ramp slope measured at the back of sidewalk is the steepest allowed, except as provided for under Note 4.
 4. Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slope shown in Note 3.
 5. The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter and the back of Ramp Curb.
 6. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
 7. Concrete shall receive a rough broom finish as shown.
 8. See Std Dwg C-05.10 and C-05.20 for joint details.
- Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information
- 10" Maximum to Face of Pedestrian Push Button

LEGEND

- ▲ Minimum Slope = 100:1 (0.01 '/ft)
- Maximum Slope = 50:1 (0.02 '/ft)

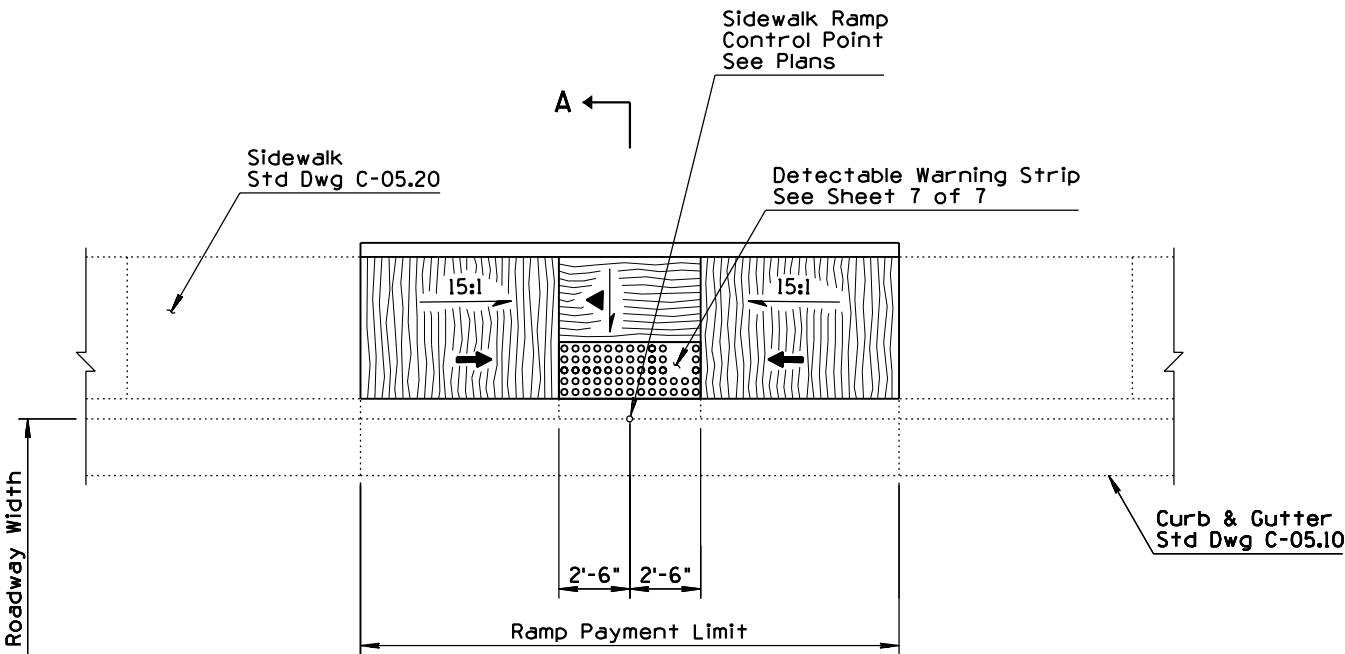


ELEVATION
DEPRESSED CURB AT SIDEWALK RAMP

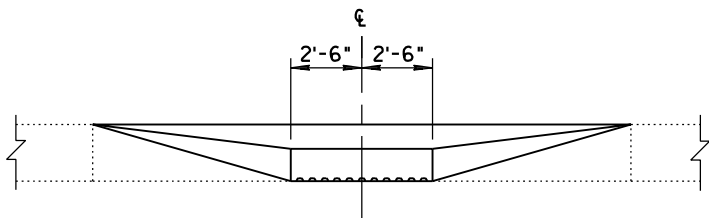
SIDEWALK RAMP AT SIDEWALK TERMINUS

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	SIDEWALK RAMP TYPE C	DRAWING NO. ① C-05.30 Sheet 3 of 7

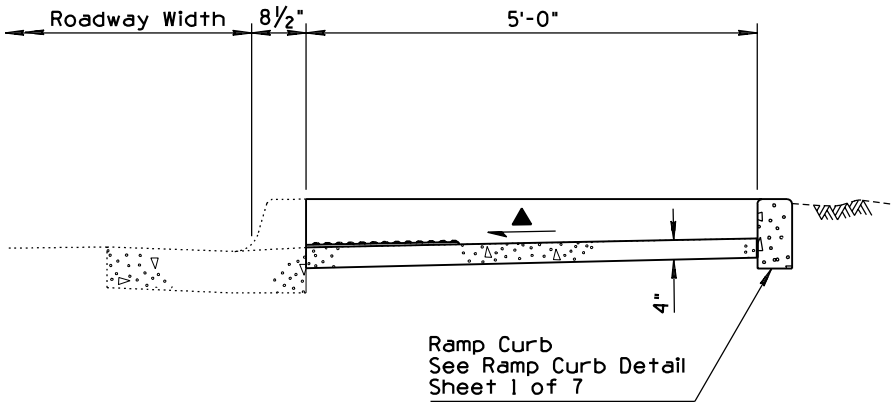
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING AS SHEET 5 OF 7	RLF	9/04
2			
3			
4			



PLAN



ELEVATION
DEPRESSED CURB AT SIDEWALK RAMP



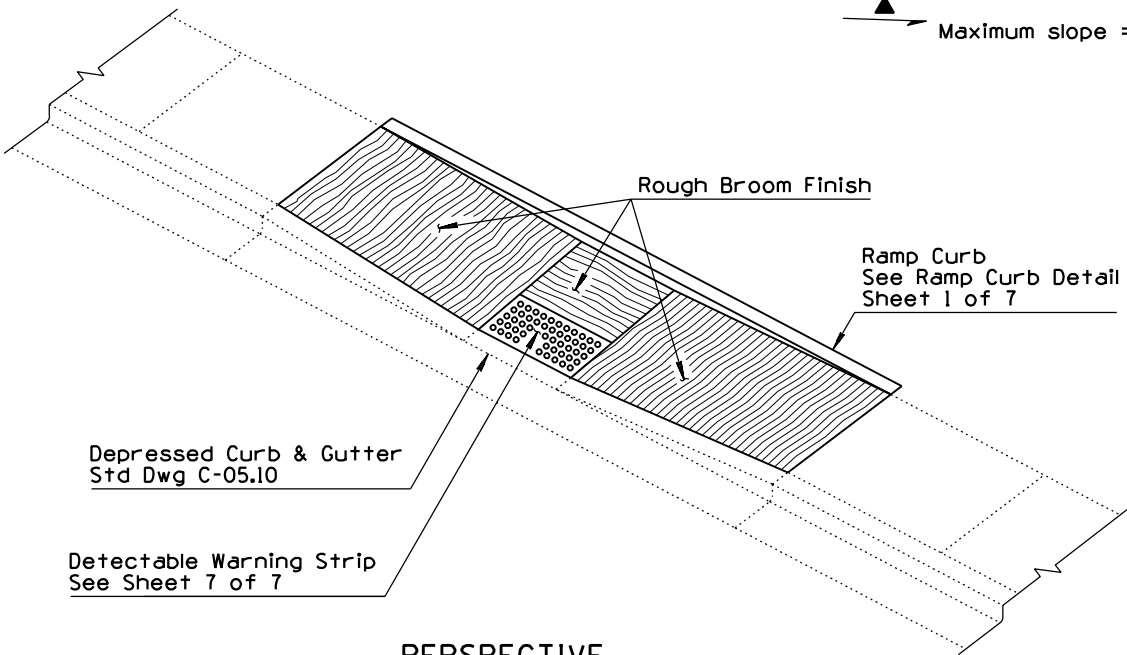
SECTION A-A

GENERAL NOTES

- For use at mid-block locations.
- Ramp centerline shall be perpendicular to the face of the curb at the Sidewalk Ramp Control Point.
- The 15:1 ramp slope is the steepest allowed, except as provided for under Note 4.
- Ramp lengths shall not exceed 10' for any installation. Ten-foot long ramps may be steeper than the slope shown in Note 3.
- For sidewalk widths greater than shown on C-05.20, the overall Sidewalk Ramp depth shall match the sidewalk width.
- Ramp curb height to match elevation at back of adjacent sidewalk.
- Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
- Concrete shall receive a rough broom finish as shown.
- See Std Dwgs C-05.10 and C-05.20 for joint details.

LEGEND

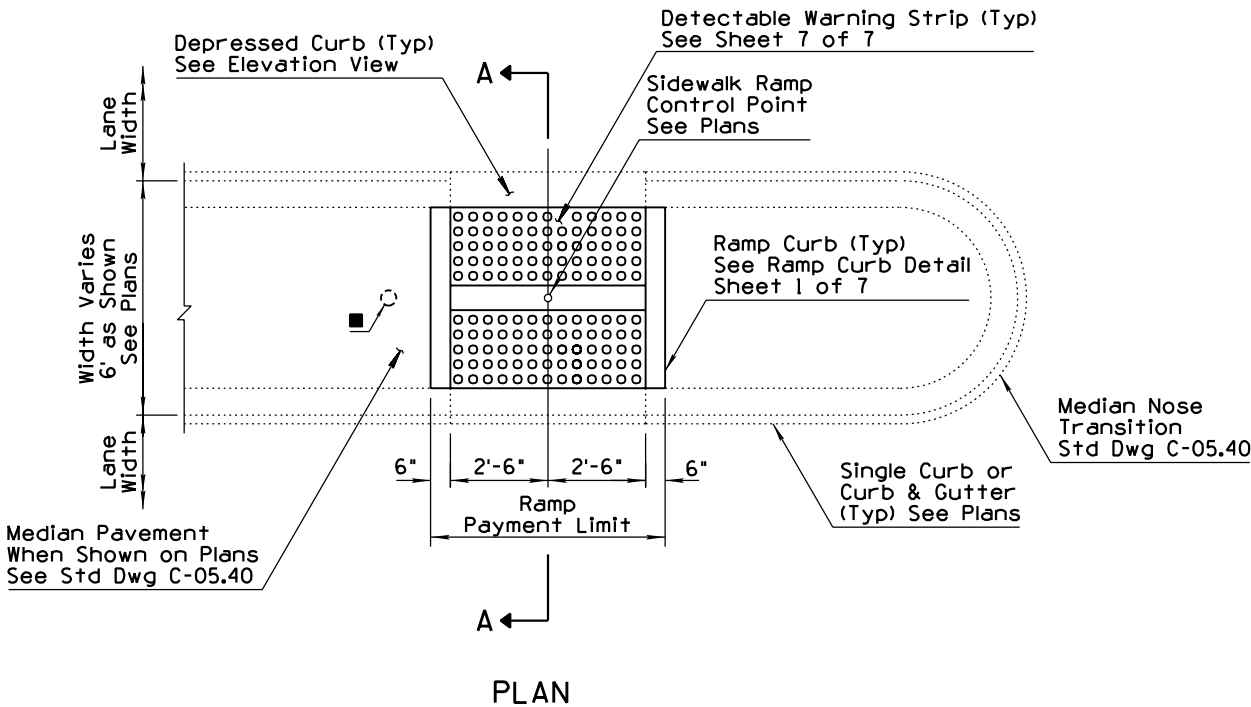
- ▲ Minimum slope = 100:1 (0.01 '/ft)
- Maximum slope = 50:1 (0.02 '/ft)



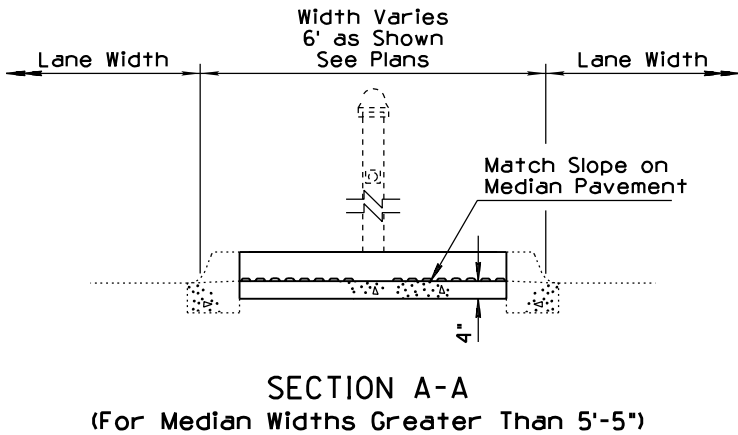
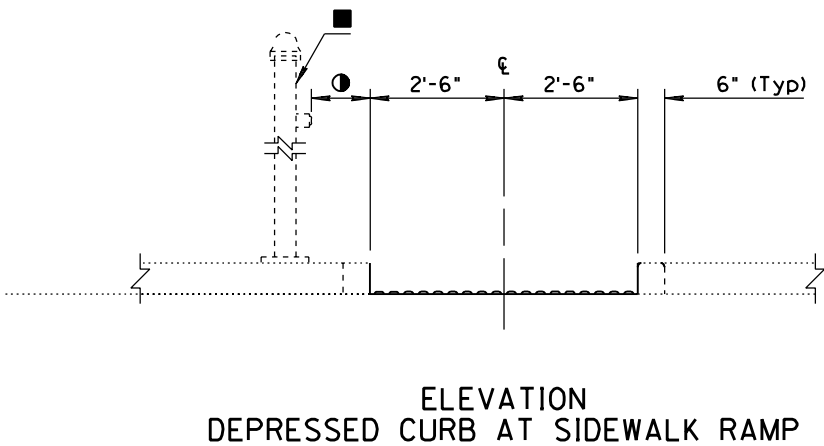
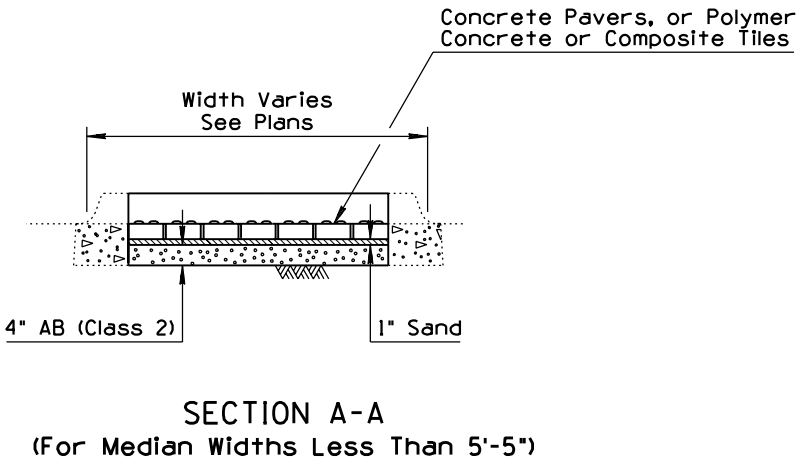
PERSPECTIVE

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE E	DRAWING NO. C-05.30 Sheet 5 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD AS SHEET 6 OF 7	RLF	9/04
2			
3			
4			



PERSPECTIVE
(For Median Widths Greater Than 5'-5")

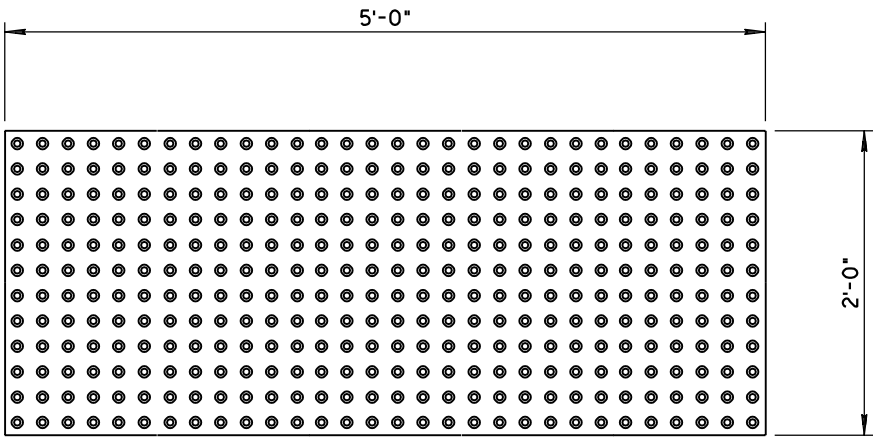


PERSPECTIVE
(For Median Widths 5'-5" And Less)
See Note 1

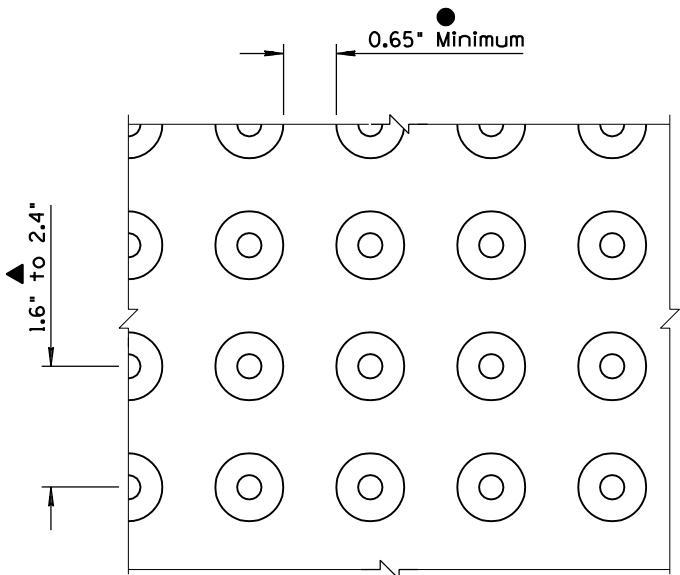
SIDEWALK RAMP AT MEDIAN ISLAND CROSSING

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE F	DRAWING NO. C-05.30 Sheet 6 of 7

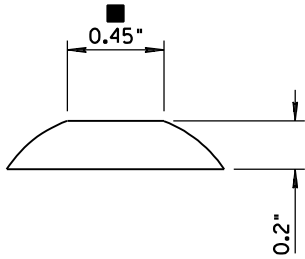
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING	RLF	9/04
2			
3			
4			



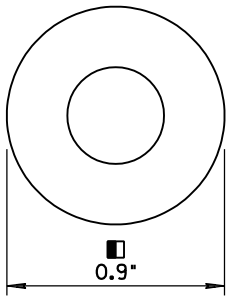
DETECTABLE WARNING STRIP
PLAN



TEXTURE PATTERN DETAIL



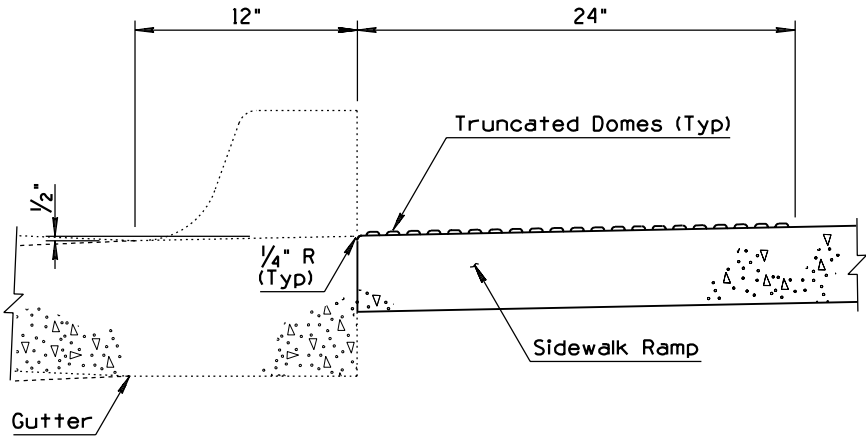
TRUNCATED DOME
ELEVATION



TRUNCATED DOME
DETAIL

LEGEND

- 1/16 " Minimum (Typ) (0.65" Minimum ADA Actual)
- ▲ 1 5/8 " to 2 3/8 " (Typ) (1.6" to 2.4" ADA Actual)
- 7/8 " to 1 3/8 " (Typ) (0.9" to 1.4" ADA Actual)
- 50% to 65% of ■

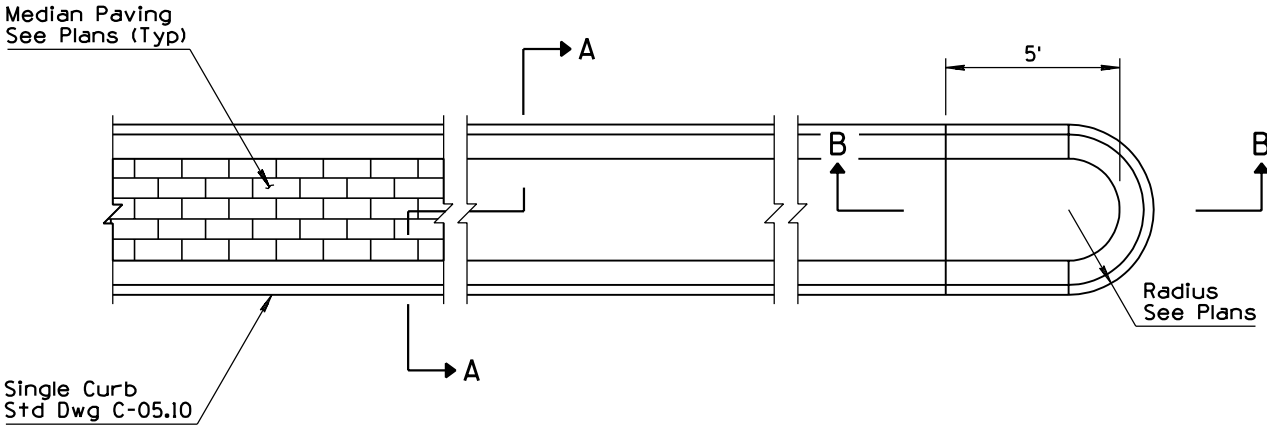


TRUNCATED DOME DETAIL

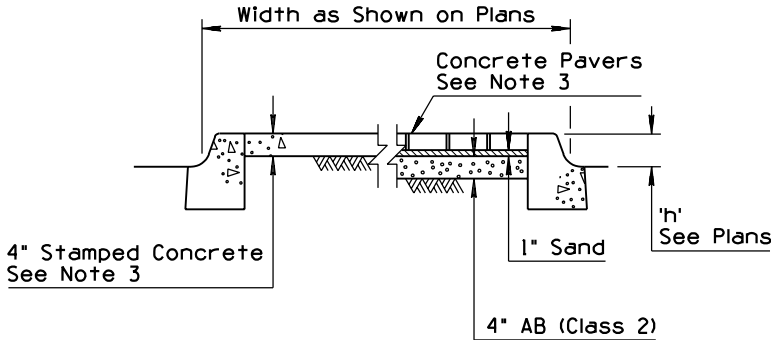
DETECTABLE WARNING STRIP DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SIDEWALK RAMP DETECTABLE WARNING STRIP	DRAWING NO. C-05.30 Sheet 7 of 7

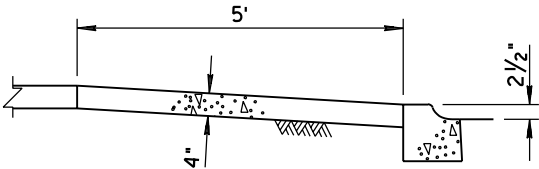
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



PLAN



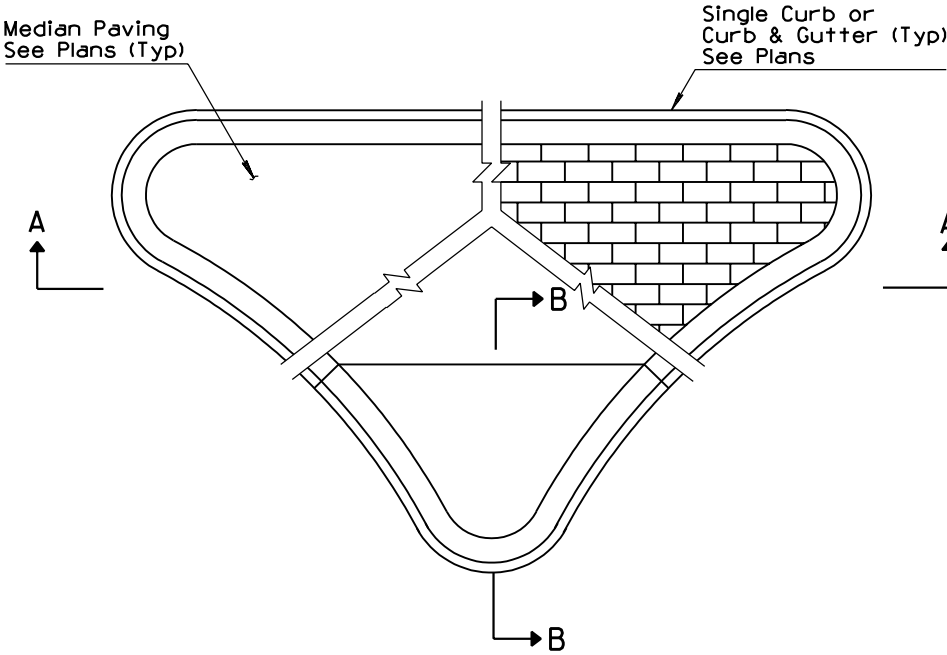
SECTION A-A



SECTION B-B

GENERAL NOTES

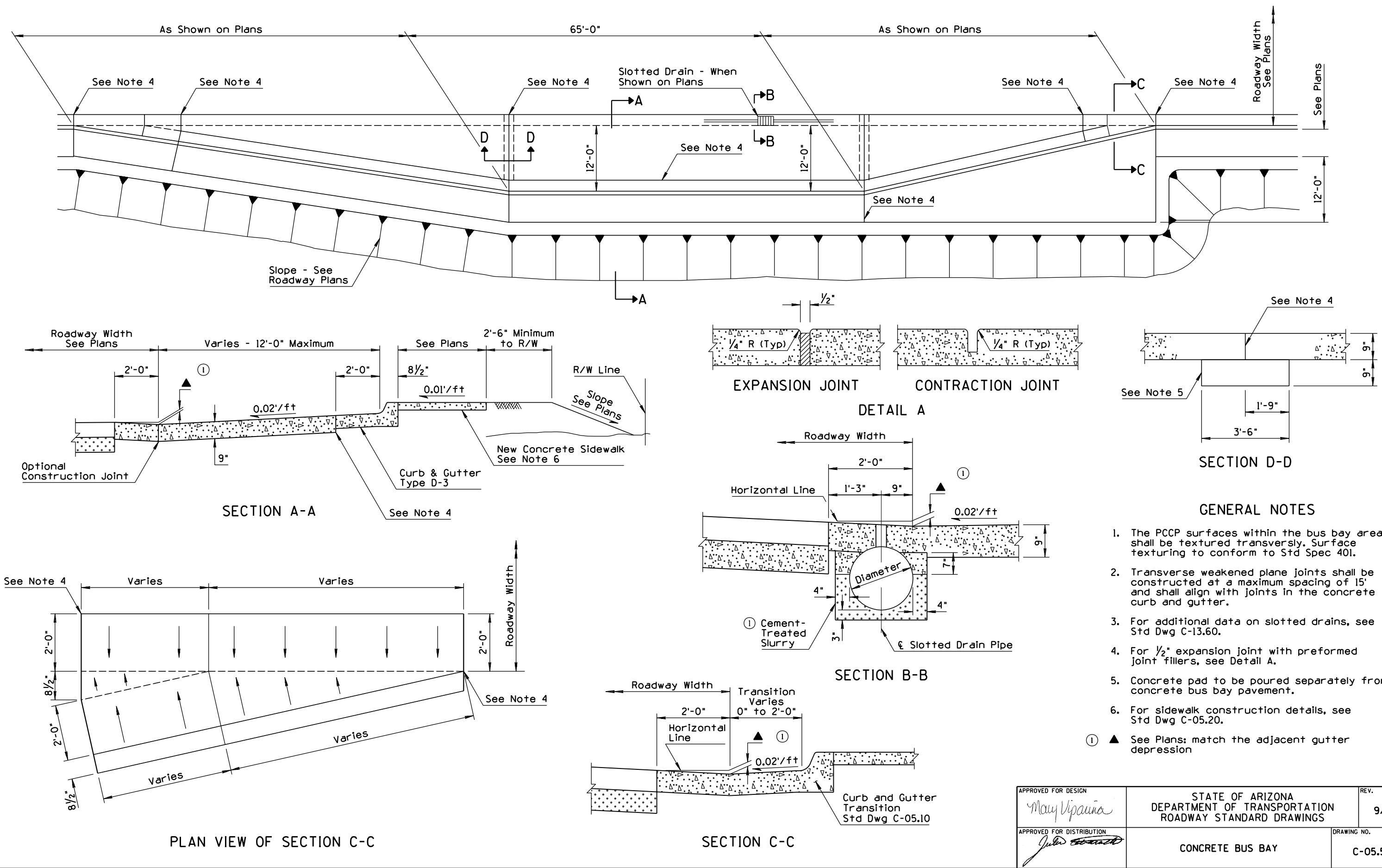
1. Traffic signal foundations, traffic sign foundations and pull boxes for traffic signs and traffic signals shall be installed prior to placement of median paving.
2. See Std Dwgs C-05.10 and C-05.20 for joint requirements.
3. Decorative median paving may be stamped concrete, concrete pavers, or as specified on the project plans.
4. Decorative median paving shall not be placed on a median nose transition or on a median island on a structure.
5. A 4"x6" concrete header shall be used to end decorative paving at locations when concrete sidewalk ramps are not present.
6. Median nose transitions shall not be placed on departure ends of raised medians.
7. See Bridge Group Plans for raised median on structures.
8. Median paving shall be Class B concrete.



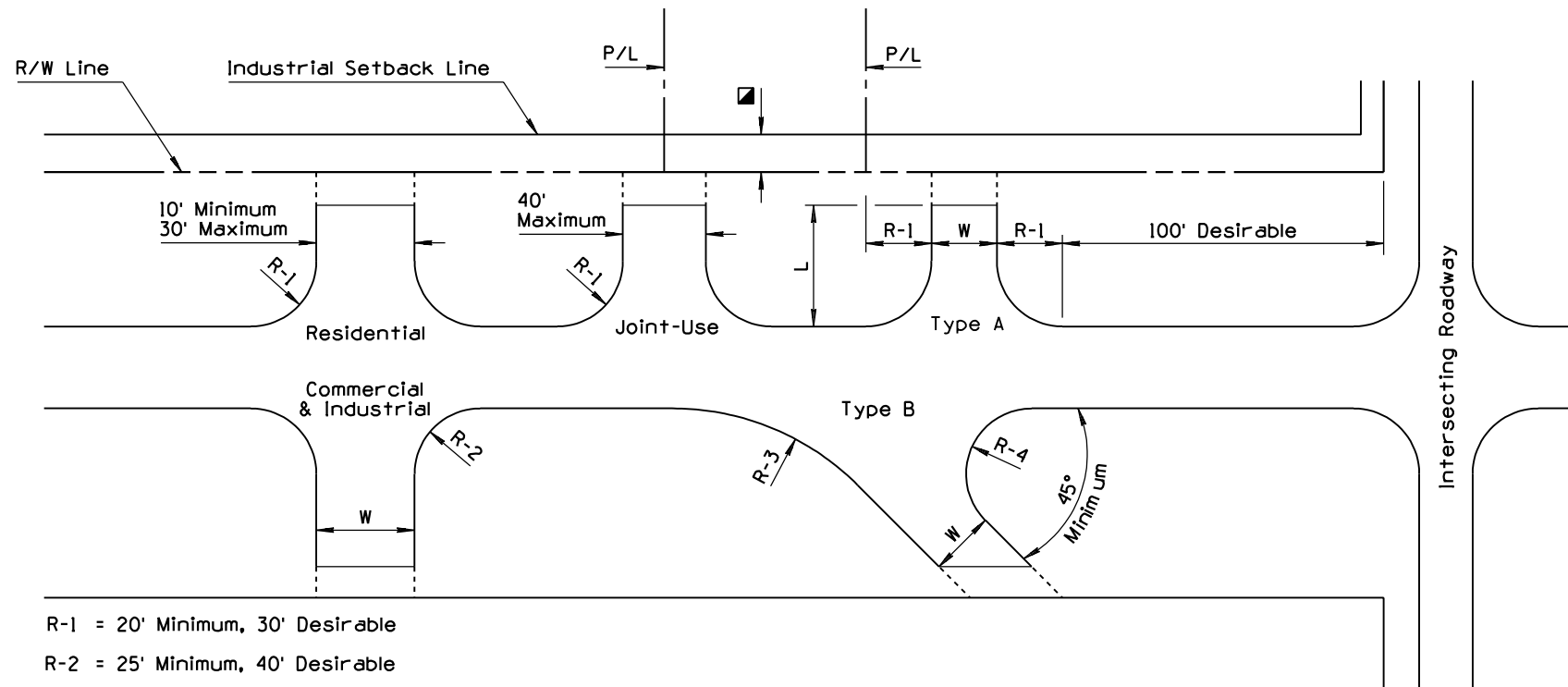
NOSE LAYOUT

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	MEDIAN PAVING AND NOSE TAPER	DRAWING NO. ① C-05.40

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED GUTTER DEPRESSION VALUE & ADDED NOTE	RLF	9/04
2			
3			
4			

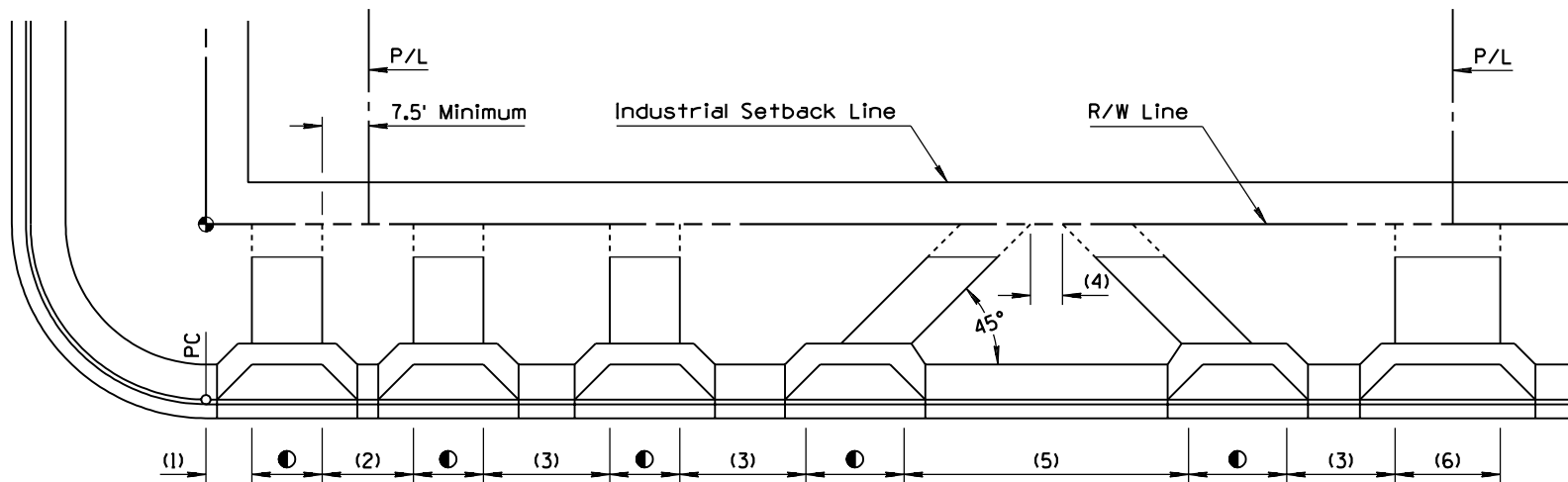


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED NOTE & REMOVED PREVIOUS TYPE B TURNOUT	RLF	9/04
2			
3			
4			



- R-1 = 20' Minimum, 30' Desirable
R-2 = 25' Minimum, 40' Desirable
R-3 = 80'
R-4 = 20' Minimum
W = 25' Minimum, 40' Maximum
■ - See Proper City or County Regulation

RURAL DEVELOPMENTS



- (1) 10' Minimum, 20' Desirable
(2) 15' Minimum
(3) 25' Minimum, 40' Desirable
(4) 40' Minimum
(5) One Way Couplet for Use Only on One Way Roadways
(6) 40' Maximum Joint-Use Driveways
● Residential - 10' Minimum, 30' Maximum
● Commercial - One Way: 15' Minimum, 30' Maximum
Two Way: 25' Minimum, 40' Maximum
● Industrial - 20' Minimum, 40' Maximum

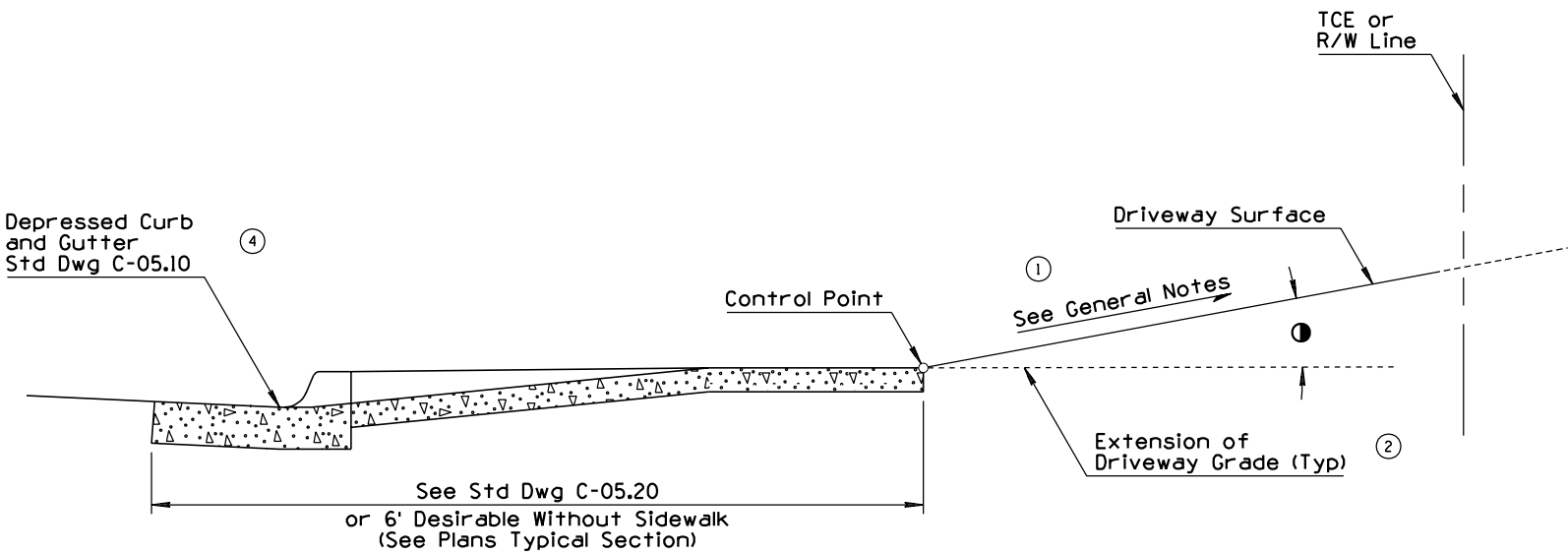
URBAN DEVELOPMENTS

GENERAL NOTES

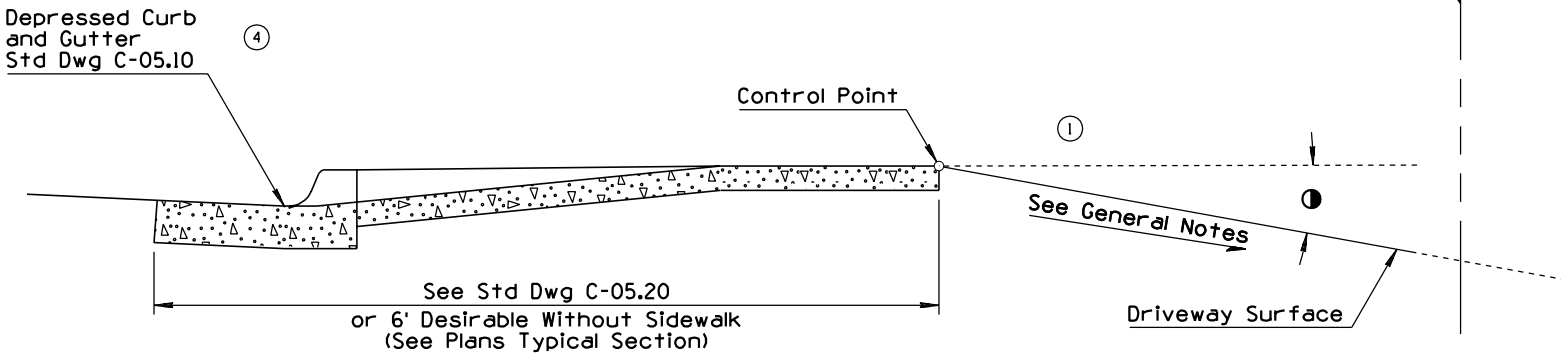
1. Driveway types:
Residential - one providing access to a single family residence, to a duplex, or to an apartment building containing five or fewer dwelling units.
Commercial - one providing access to an office, retail or institutional building or to an apartment building having more than five dwelling units.
Industrial - one directly serving a substantial number of truck movements to and from loading docks of an industrial facility, warehouse or truck terminal.
- ① 2. Joint-use driveways may become desirable for landowners of adjacent properties to service both properties. If this is the case, only one of the two adjacent landowners need apply for the access permit, but a recorded joint-use easment, signed by all parties involved, must accompany the application form. The property line can be located anywhere, in reference to the driveway, depending on mutual agreement.
- ① 3. Driveways for high volume traffic generators shall be approved individually by Regional Traffic Engineering or the Traffic Engineering Group.
- ① 4. Driveways with curb returns in urban areas shall be installed only with the approval of Regional Traffic Engineering or the Traffic Engineering Group.
5. Driveways and depressed curbs shall be located as noted on plans or as directed by the Engineer.
6. Drainage structures shall be provided under driveways where necessary.
7. Dimensions indicated as minimum shall be avoided whenever possible in favor of those indicated as desirable.
- ① 8. The Type "A" turnout is the preferable turnout design. Type "B" shall only be used when absolutely necessary.
9. Paved turnouts & plan notations will be W X L, surface material, type and standard. Example: 20' X 30' ACTO, Type A, Std Dwg C-06.10. Show radius (R) graphically.
10. Construction of curb, gutter, sidewalk and drainage facilities in urban areas by the permittee along that portion of the highway frontage under permit application, may be a stipulation of the permit approval if there appears to be reasonable need.
11. Excavation or embankment for turnouts shall be included in quantities for main roadways.
12. Base material shall be the same as that shown for main roadway, unless otherwise noted.
13. Desirable sideslope for rural turnouts is 6:1.

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DRIVEWAY & TURNOUT LAYOUTS	DRAWING NO. C-06.10 Sheet 1 of 2

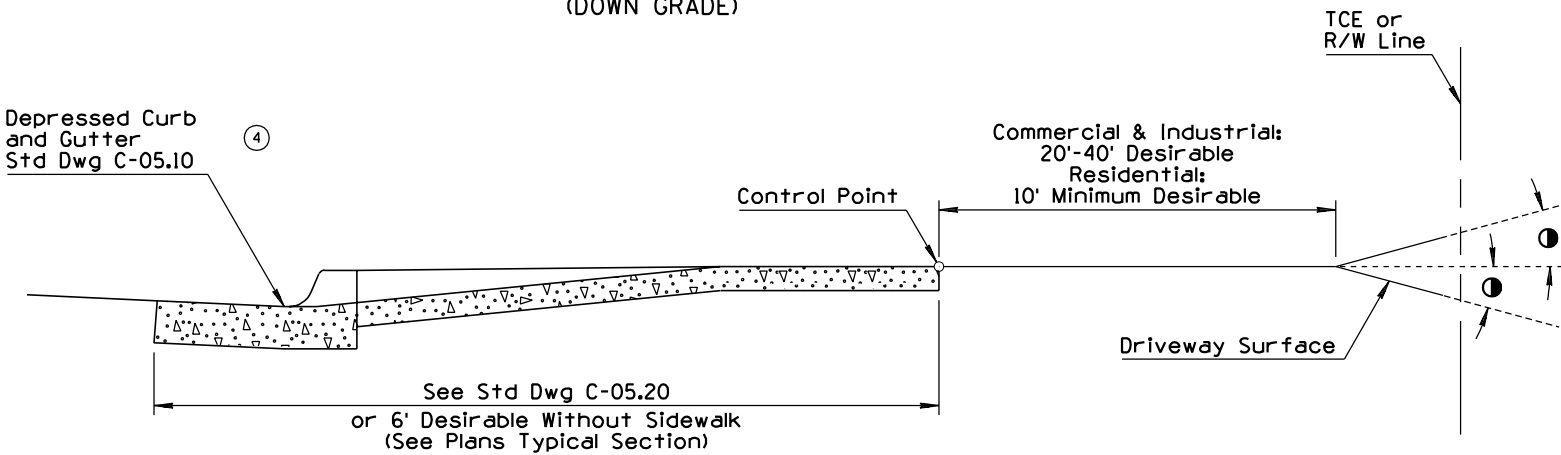
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ROTATED DRIVEWAY BEYOND SIDEWALK	PNB	10/95
2	ADDED NOTE	PNB	10/95
3	MODIFIED TITLE	BAF	8/98
4	ADDED DEPRESSED CURB & GUTTER CALLOUT	RLF	4/04



URBAN CROSS SECTION
(UP GRADE)



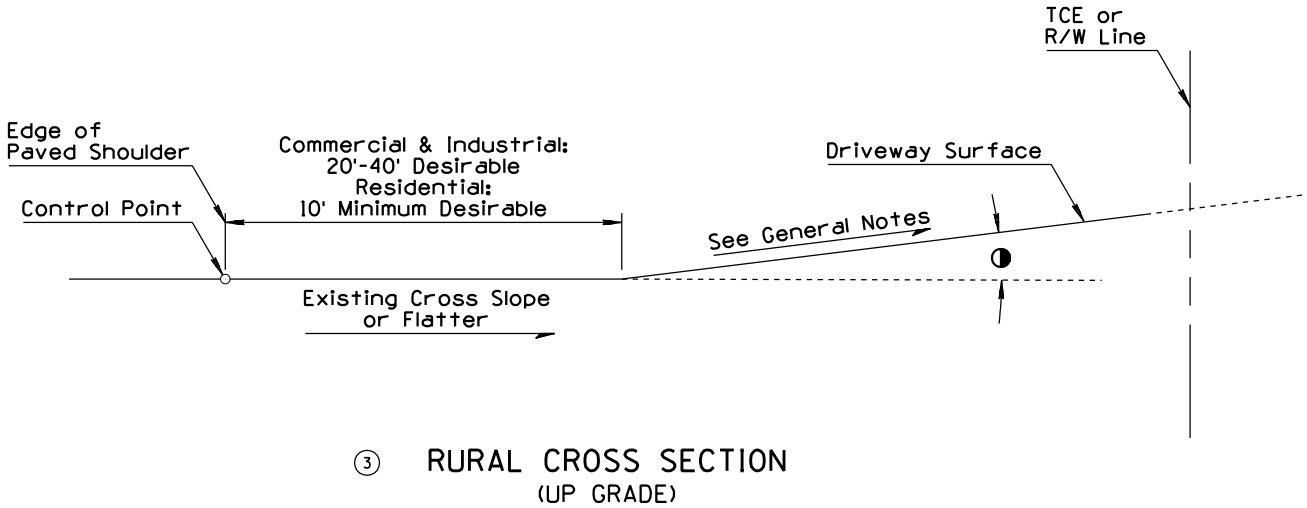
URBAN CROSS SECTION
(DOWN GRADE)



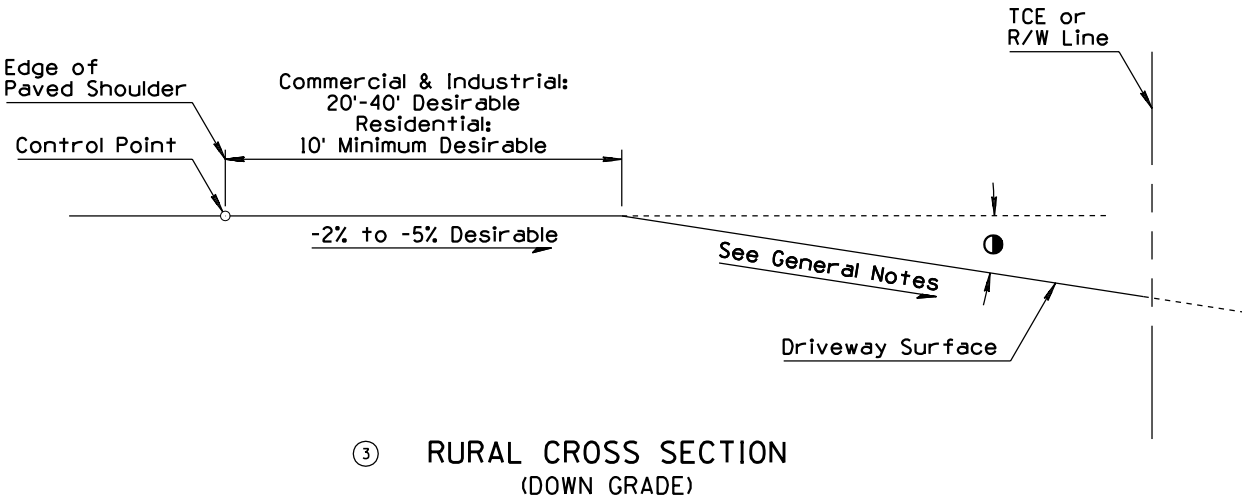
DESIRABLE URBAN CROSS SECTION

GENERAL NOTES

1. Grade as shown on plans or as negotiated between property owner and Engineer.
2. When field conditions require modifications to plans, contact design engineer for assistance.
3. See Sheet 1 of 2 for all other General Notes.
- ① Break angle greater than 6% requires a vertical curve, L=10' minimum. Vertical curve shall not encroach on roadway or sidewalk.



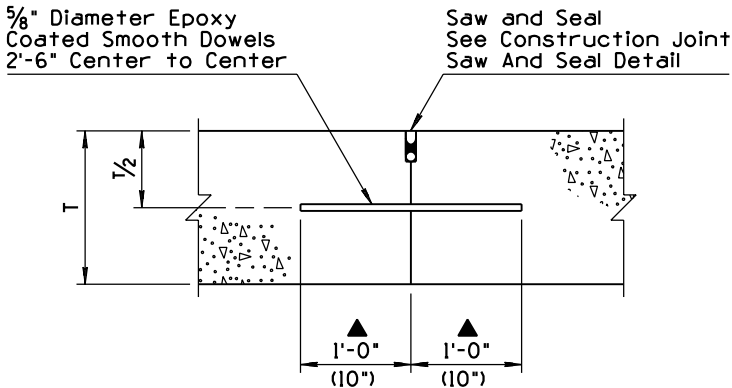
RURAL CROSS SECTION
(UP GRADE)



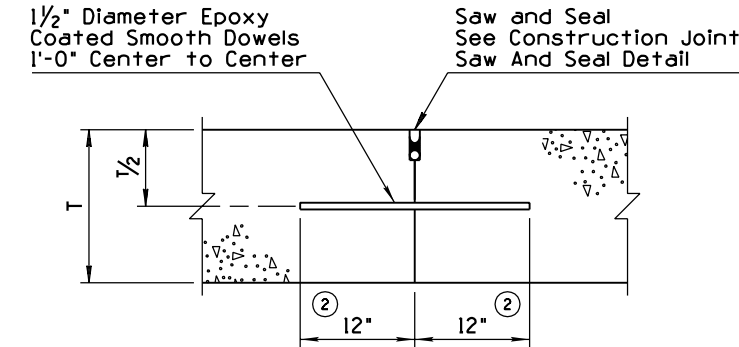
RURAL CROSS SECTION
(DOWN GRADE)

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 8/98
APPROVED FOR DISTRIBUTION <i>Julia [signature]</i>	DRIVEWAY & TURNOUT LAYOUTS	DRAWING NO. C-06.10 Sheet 2 of 2

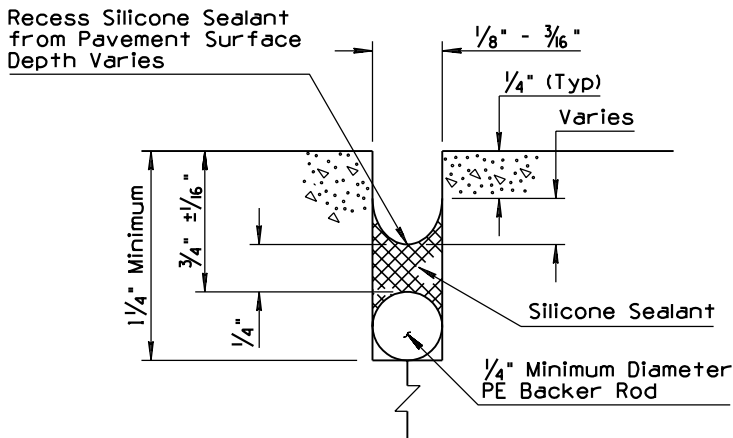
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 3, 4 & K JOINT DETAIL	RLF	9/04
2	REVISED DIMENSIONS FROM 9" TO 12"	RLF	9/04
3	ADDED DEFINITION FOR 'PE'	RLF	9/04
4			



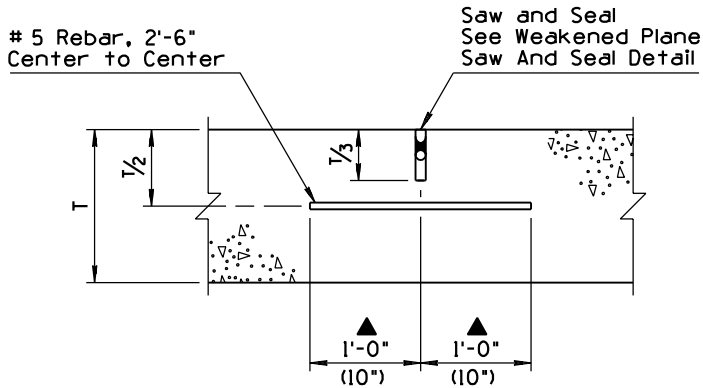
LONGITUDINAL CONSTRUCTION JOINT
LC Joint



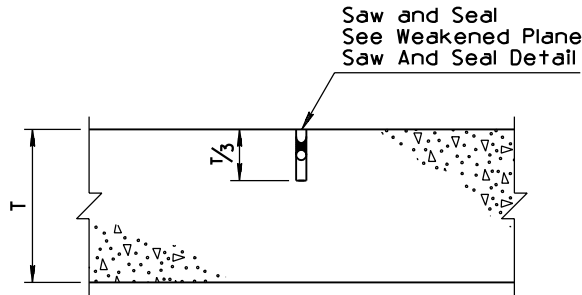
TRANSVERSE CONSTRUCTION JOINT
TC Joint
Non-Skewed & Skewed Joints



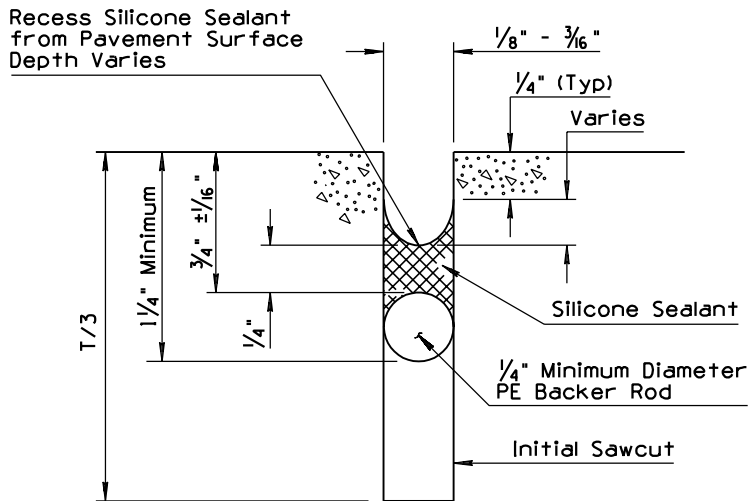
CONSTRUCTION JOINT
SAW AND SEAL DETAIL



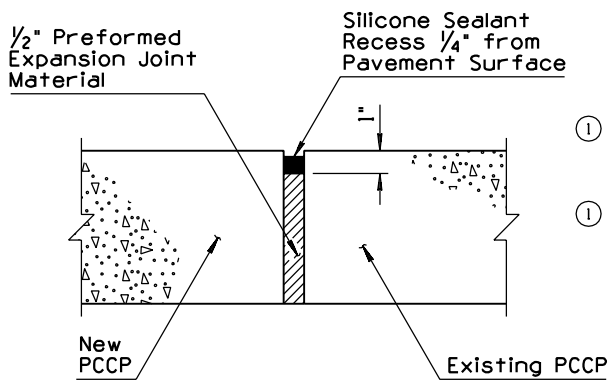
LONGITUDINAL WEAKENED PLANE JOINT
LWP Joint



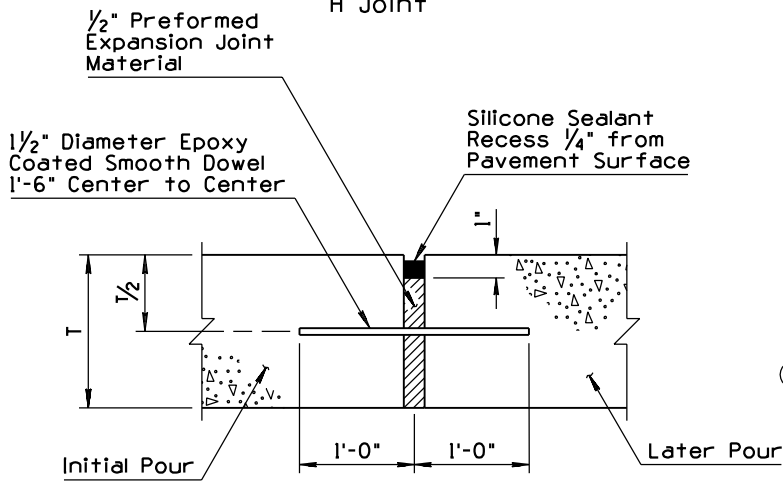
TRANSVERSE WEAKENED PLANE JOINT
TWP Joint
W/O Load Transfer Dowel Assemblies



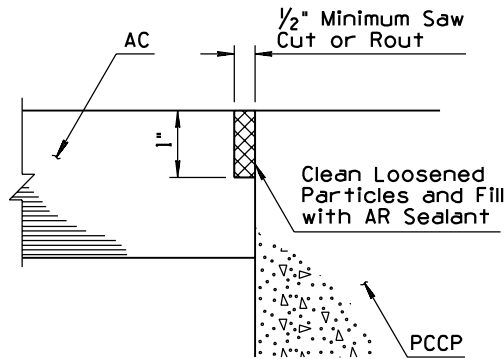
WEAKENED PLANE JOINT
SAW AND SEAL DETAIL



EXPANSION JOINT
H Joint



EXPANSION JOINT
E Joint

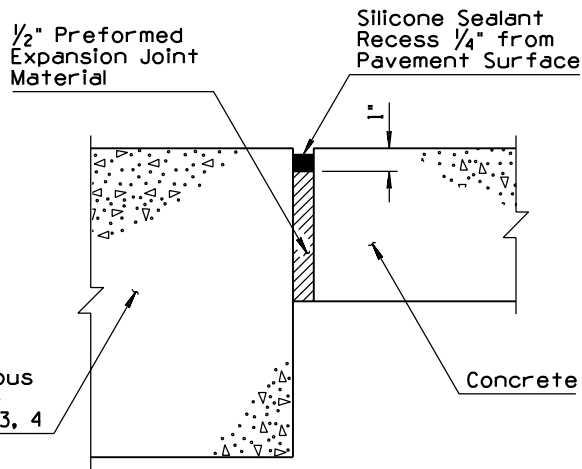


AC/PCCP EDGE SEAL JOINT
S Joint
(Where Specified on Plans)

- GENERAL NOTES
- When load transfer dowel assemblies are required, use dimensions shown in ()'s. See Assembly Placement And Edge Clearance Detail, Std Dwg C-07.02.
 - In slip form type pavement construction, LWP joints shall be used. In fixed form construction either LWP or LC joints may be used.
 - K joints shall be constructed around the complete perimeter of miscellaneous structures, or as directed by the Engineer.
 - Miscellaneous structures include, but are not limited to, catch basins, sign structure foundations, piers, abutments, barrier transitions, slotted drains and other concrete facilities, constructed within the right-of-way.

JOINT ABBREVIATIONS

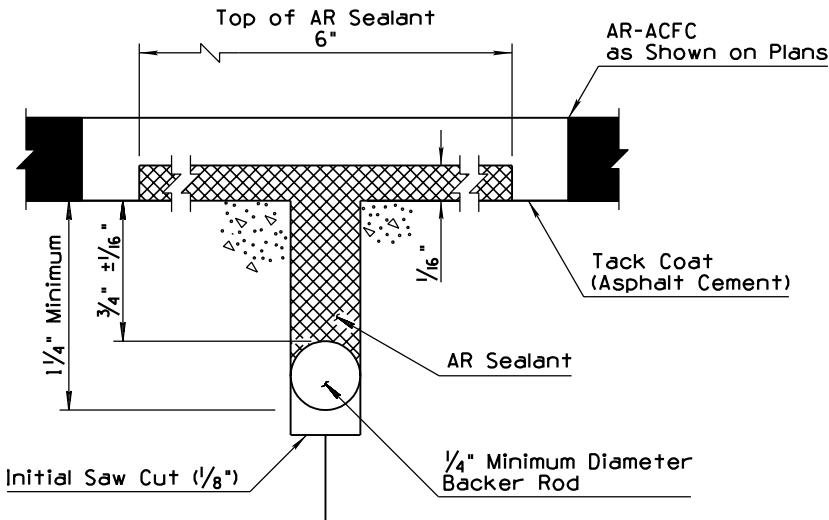
- LWP - Longitudinal Weakened Plane Joint
- TWP - Transverse Weakened Plane Joint
- LC - Longitudinal Construction Joint
- TC - Transverse Construction Joint
- E, H, K - Expansion Joints
- S - AC/PCCP Edge Seal Joint
- T - PCCP Thickness
- PE - Polyethylene



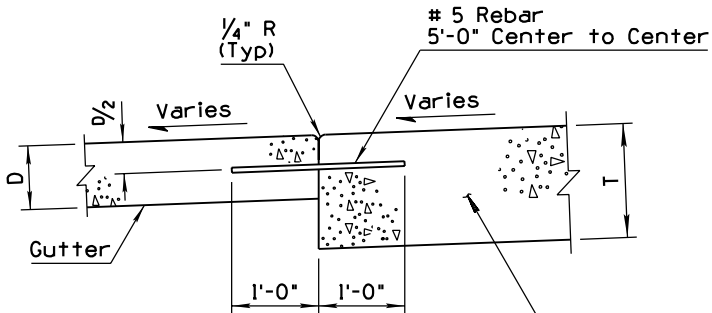
EXPANSION JOINT
K Joint (See Notes 3 & 4)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINTS	DRAWING NO. C-07.01 Sheet 1 of 2

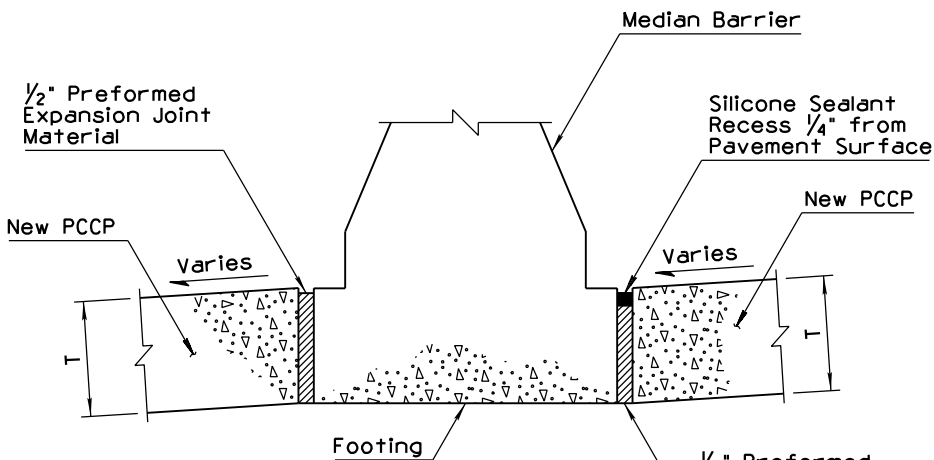
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED GENERAL NOTE 2	RLF	9/04
2	REVISED GENERAL NOTE	RLF	9/04
3	ADDED JOINT DETAIL	RLF	9/04
4			



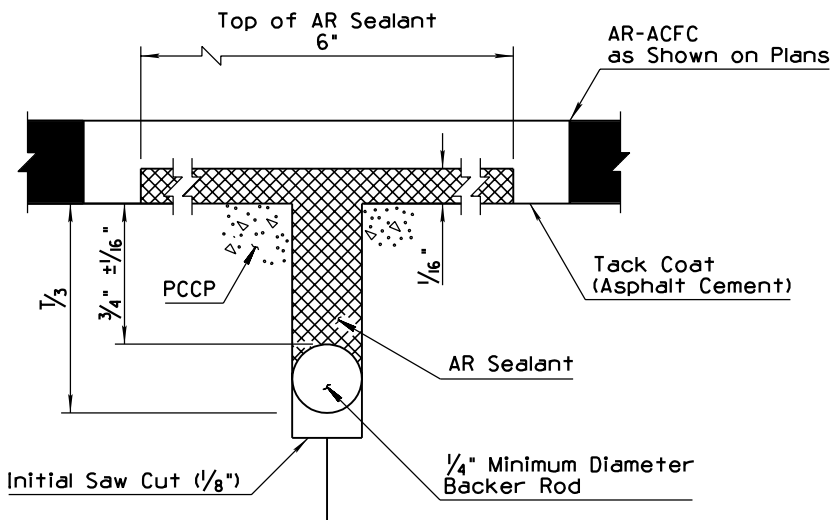
LONGITUDINAL CONSTRUCTION JOINT DETAIL (WITH AR-ACFC) ③



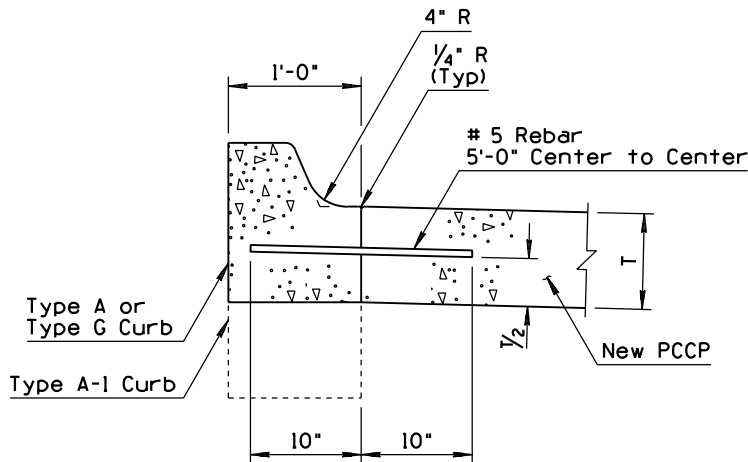
CURB & GUTTER JOINT G Joint



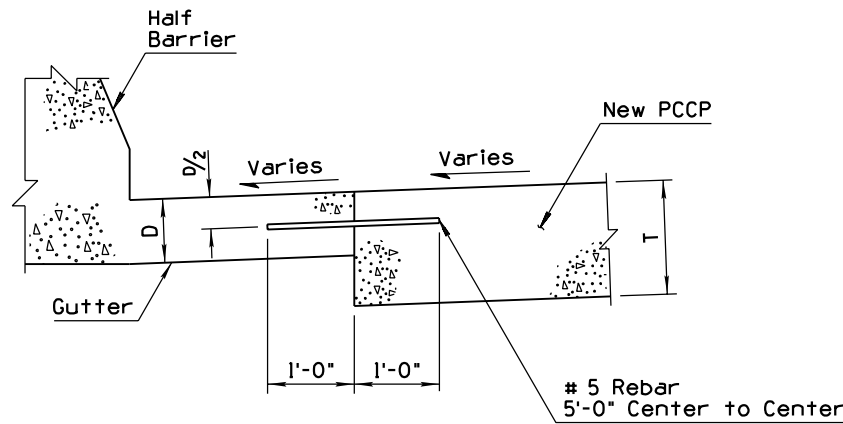
MEDIAN BARRIER JOINT B Joint PCCP on Both Sides of Barrier



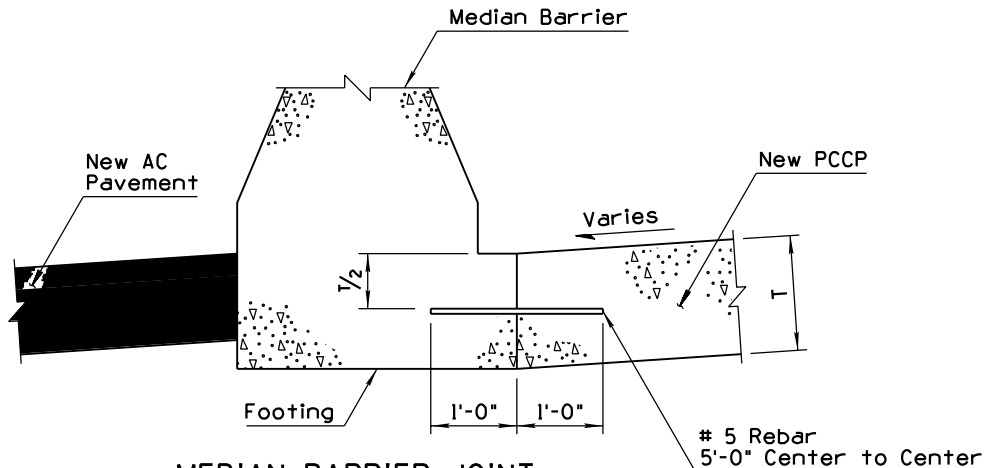
WEAKENED PLANE JOINT DETAIL (WITH AR-ACFC) ③



SINGLE CURB JOINT A Joint



HALF BARRIER JOINT B Joint



MEDIAN BARRIER JOINT B Joint AC Pavement on Back Side of Barrier

GENERAL NOTES

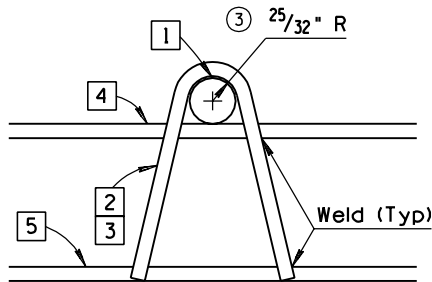
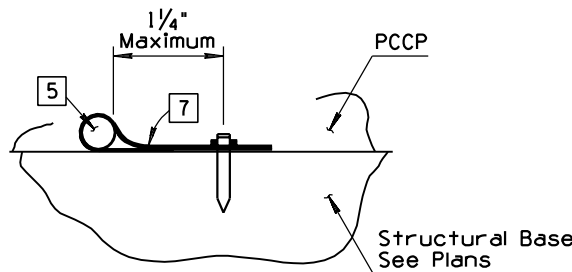
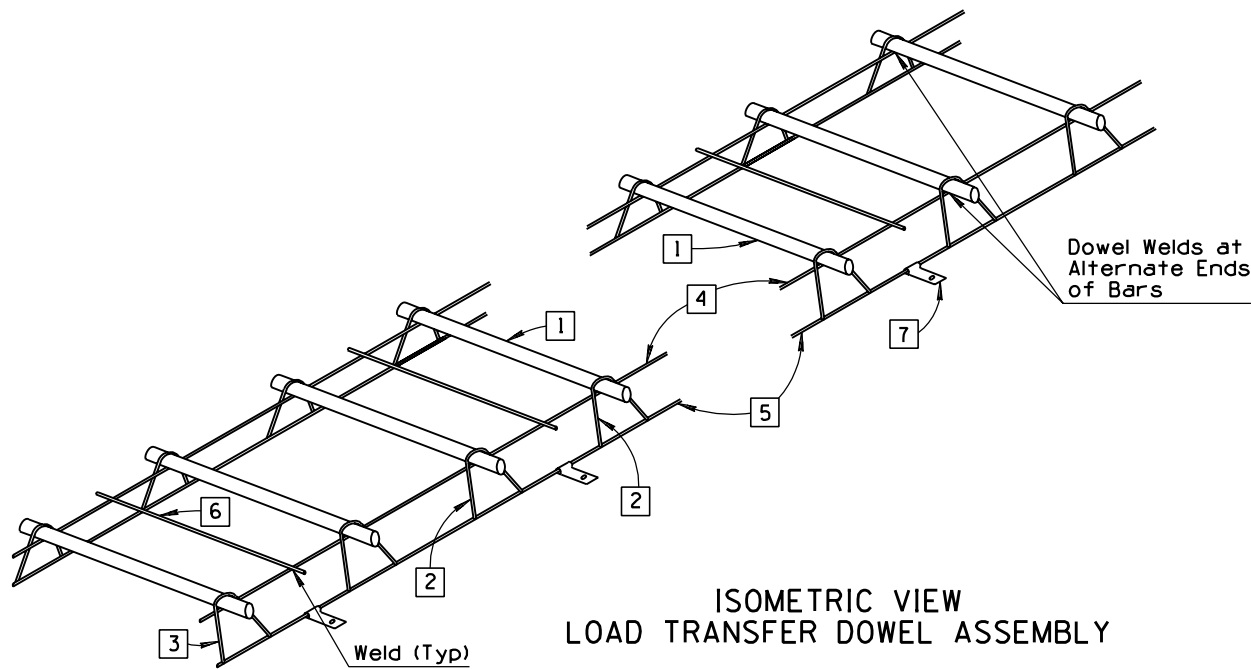
- ② 1. Joints are generally shown with pavement sloping toward the joint.

JOINT ABBREVIATIONS

- G - Gutter Joint
T - PCCP Thickness
D - Gutter Thickness
B - Barrier Joint

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julio Gonzalez</i>	PCCP JOINTS	DRAWING NO. C-07.01 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			

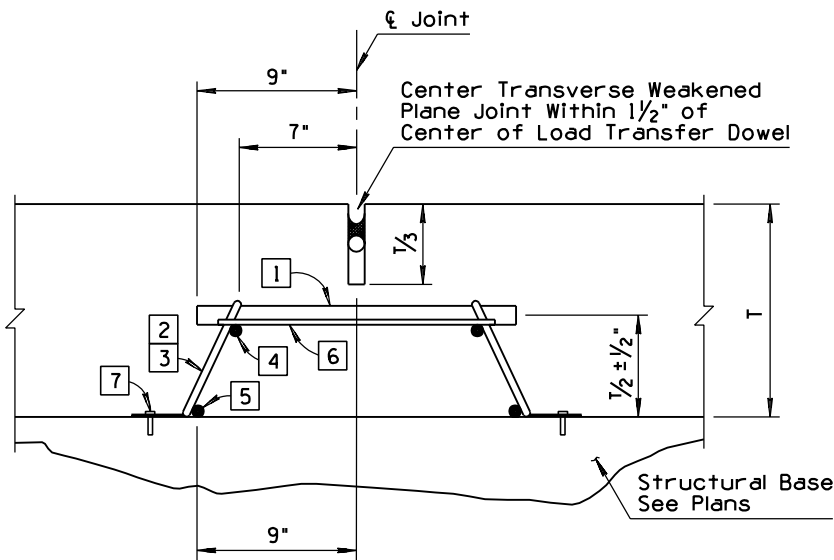
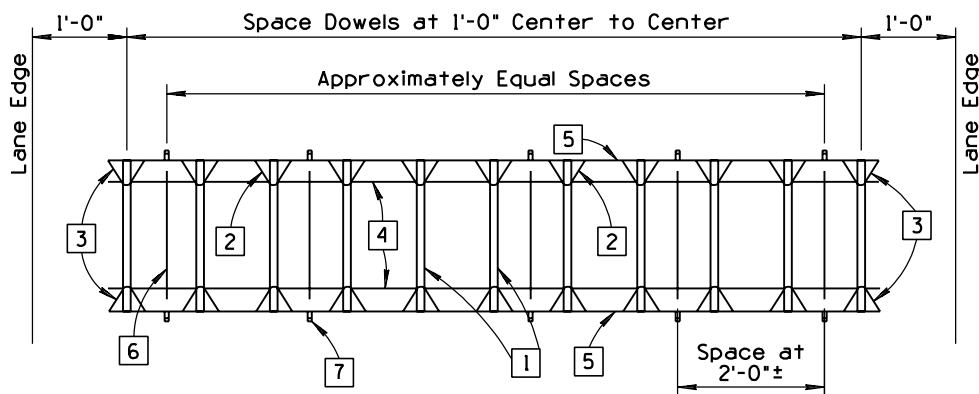


GENERAL NOTES

1. Load transfer dowel assemblies shall be used with non-skewed PCCP joints.
2. Load transfer dowel assemblies are to be placed at each transverse weakened plane joint on the traveled lanes as shown on the plans.
3. See Std Dwgs C-07.01 through C-07.05 for additional information.
4. See plans or Std Dwgs C-07.03 through C-07.05 for transverse joint spacing.
5. See plans for pavement thickness less than 12" or greater than 14".

Load transfer dowel assembly shall be assembled from the following materials:
(See Quantity Table)

- 1 Dowel bars - 1/2" diameter x 1'-6" plain round bars with coating. See Special Provisions.
- 2 Intermediate legs - 2 gauge or W-5.5 wire.
- 3 End legs - 2 gauge or W-5.5 wire.
- 4 Upper space bar - 2 gauge or W-5.5 wire x 1 . (See Dimension Table)
- 5 Lower space bar - 2 gauge or W-5.5 wire x 1 . (See Dimension Table)
- 6 Tie bars - W-1.5 wire x 16".
- 7 Anchor strap - 1"x3" steel strap, 0.079 thick. Place with a 1/2" minimum length steel nail for LCB, 4" minimum length steel nail for ACB or AB, 0.145 diameter ASTM A227 Class 1 with 1/4" head or washer.

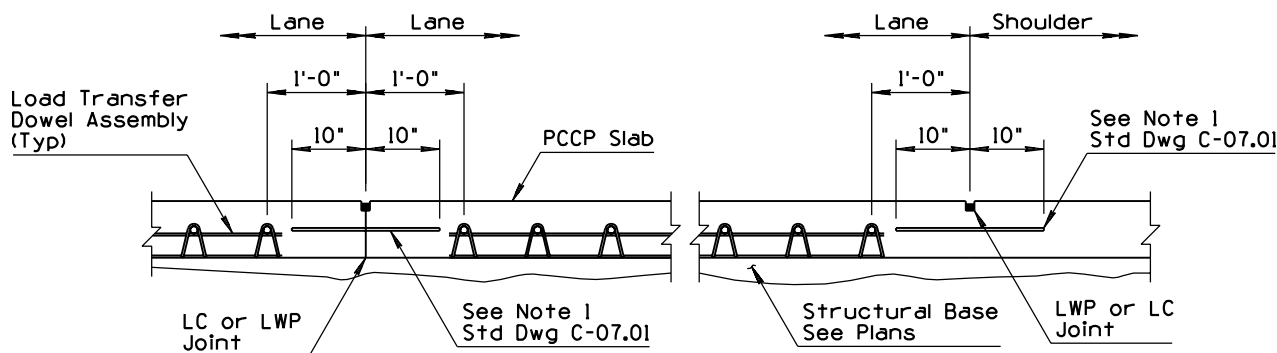


QUANTITY TABLE

Item No	Lane Width (Ft)		
	12	14	16
1	11	13	15
2	18	22	26
3	4	4	4
4	2	2	2
5	2	2	2
6	5	6	7
7	10	12	14

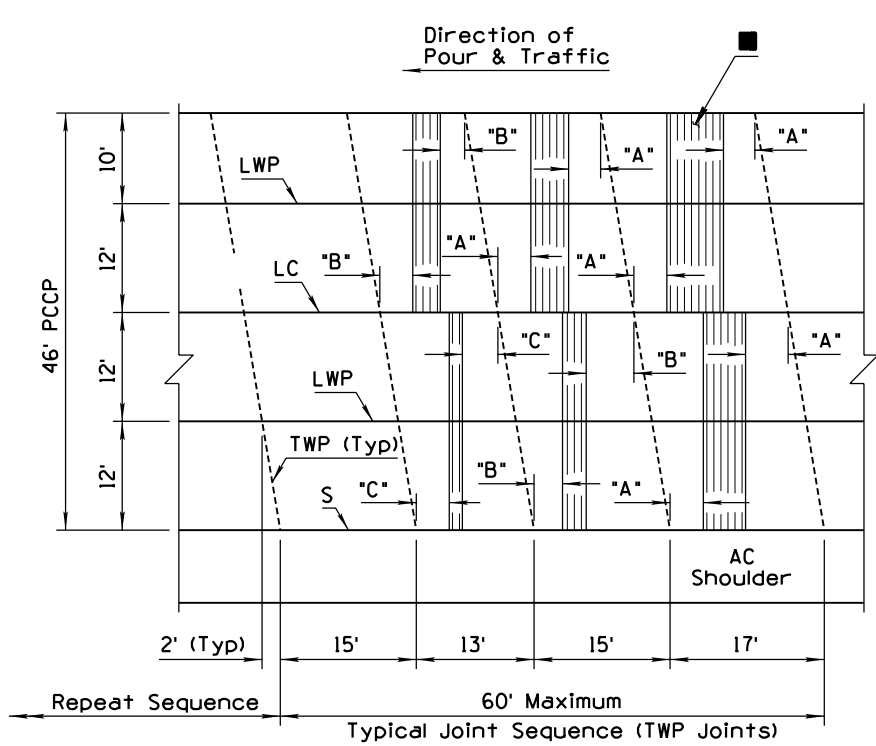
DIMENSION TABLE

	Lane Width (Ft)		
	12	14	16
1 (Ft-In))	10-4	12-4	14-4

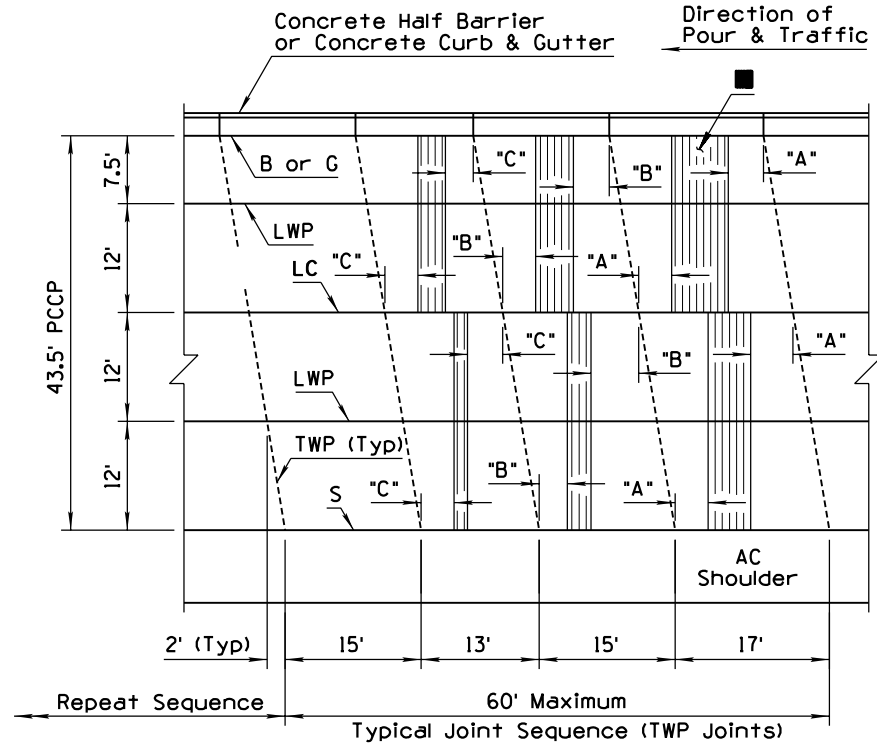


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	LOAD TRANSFER DOWEL ASSEMBLY	DRAWING NO. C-07.02

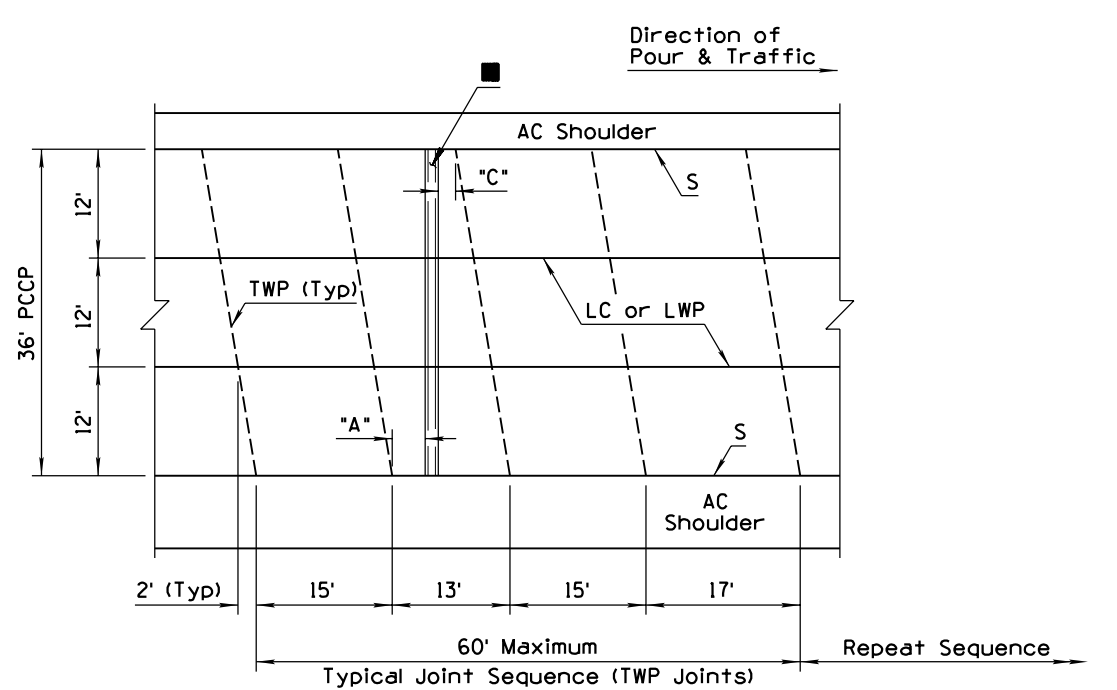
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN
46' PCCP



PLAN ②
43.5' PCCP

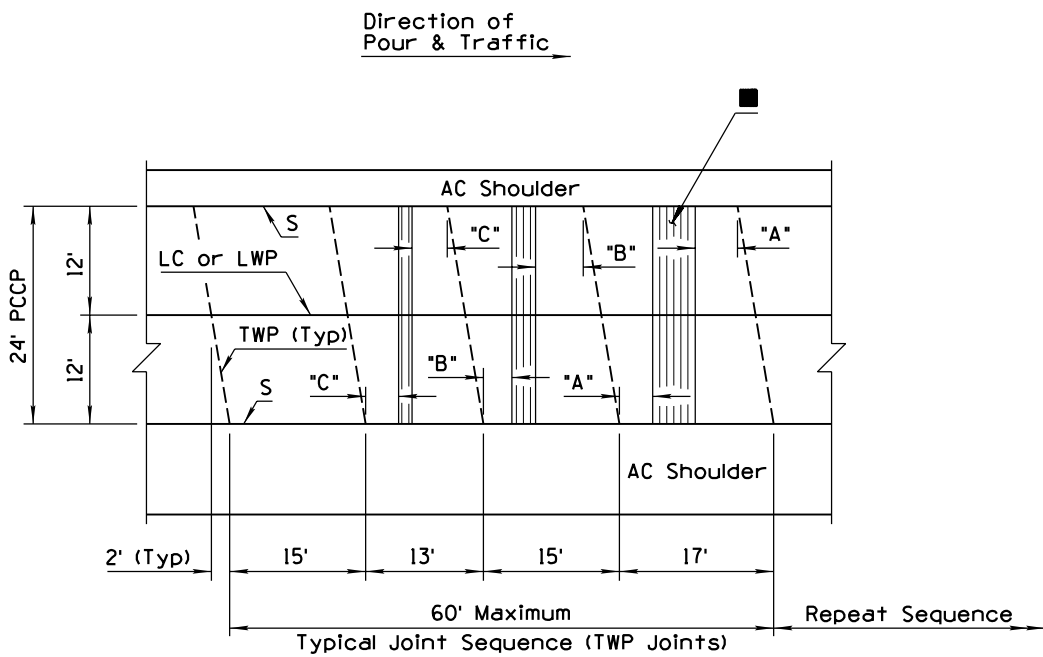


PLAN
36' PCCP

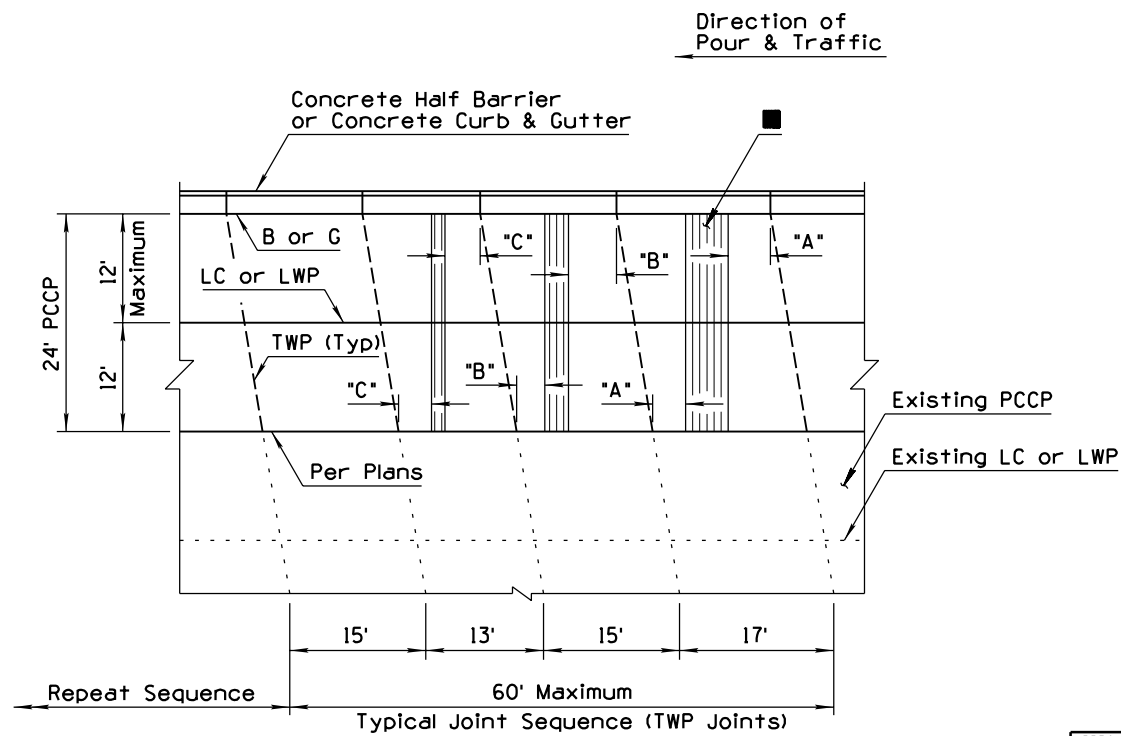
GENERAL NOTES

1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
3. "A" shall equal 4' minimum (Typ)
"B" shall equal 3' minimum (Typ)
"C" shall equal 2' minimum (Typ)
4. See Std Dwg C-07.01 for PCCP joints and additional notes.
5. All transverse joints shall align with joints in adjacent slabs.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

■ Transverse Construction Joint (TC) Allowable Limits (Typ)



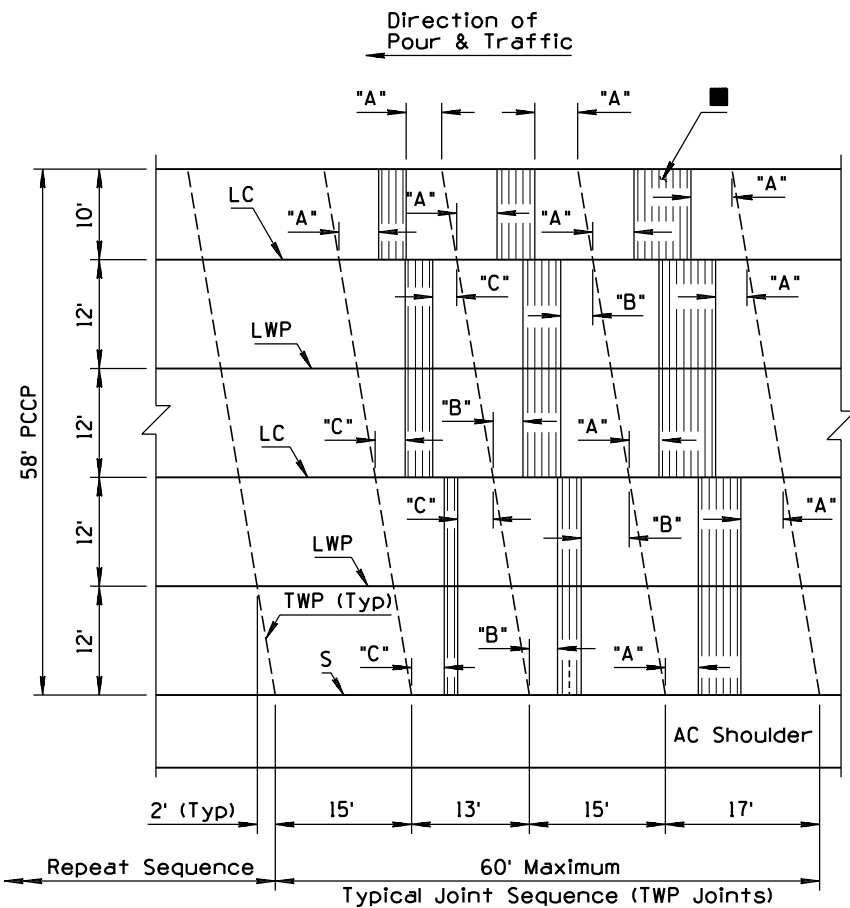
PLAN
24' PCCP



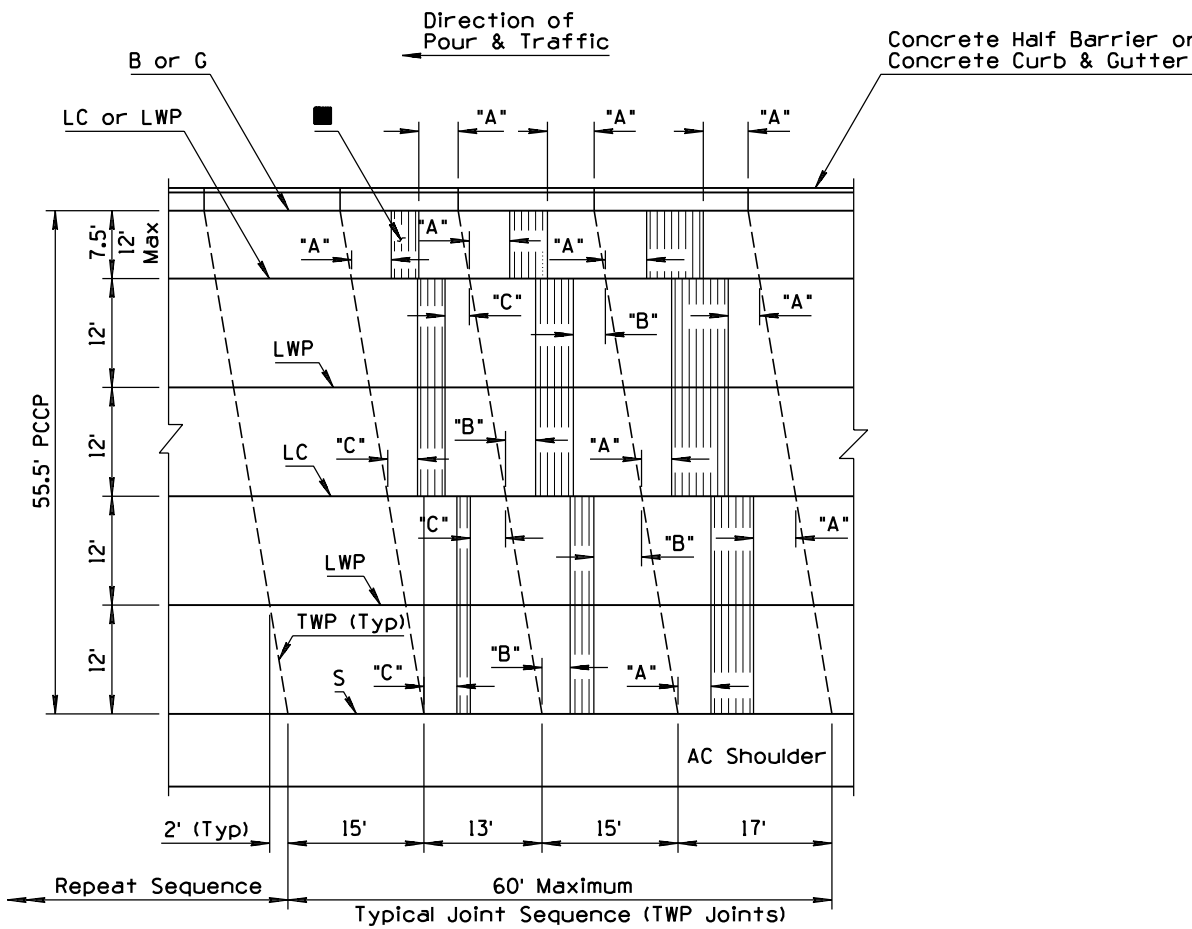
PLAN ②
24' PCCP
(WIDENING)

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS ③	DRAWING NO. C-07.03 Sheet 1 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN
58' PCCP



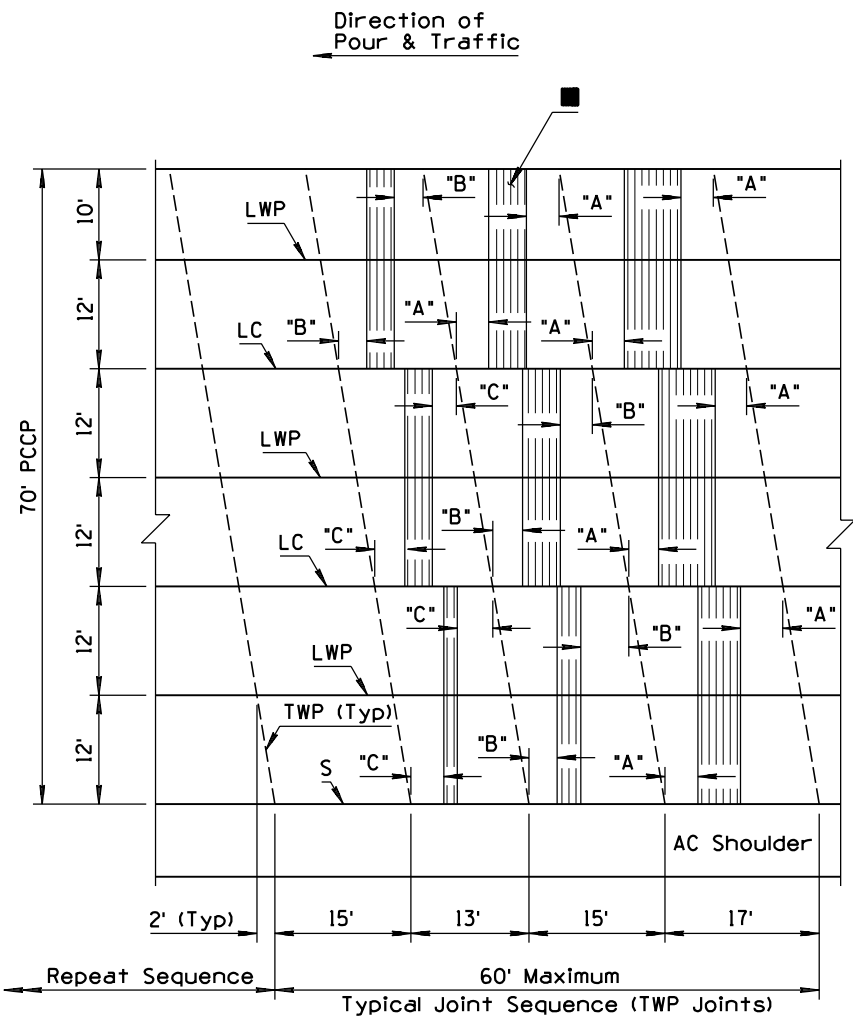
PLAN ②
55.5' PCCP

GENERAL NOTES

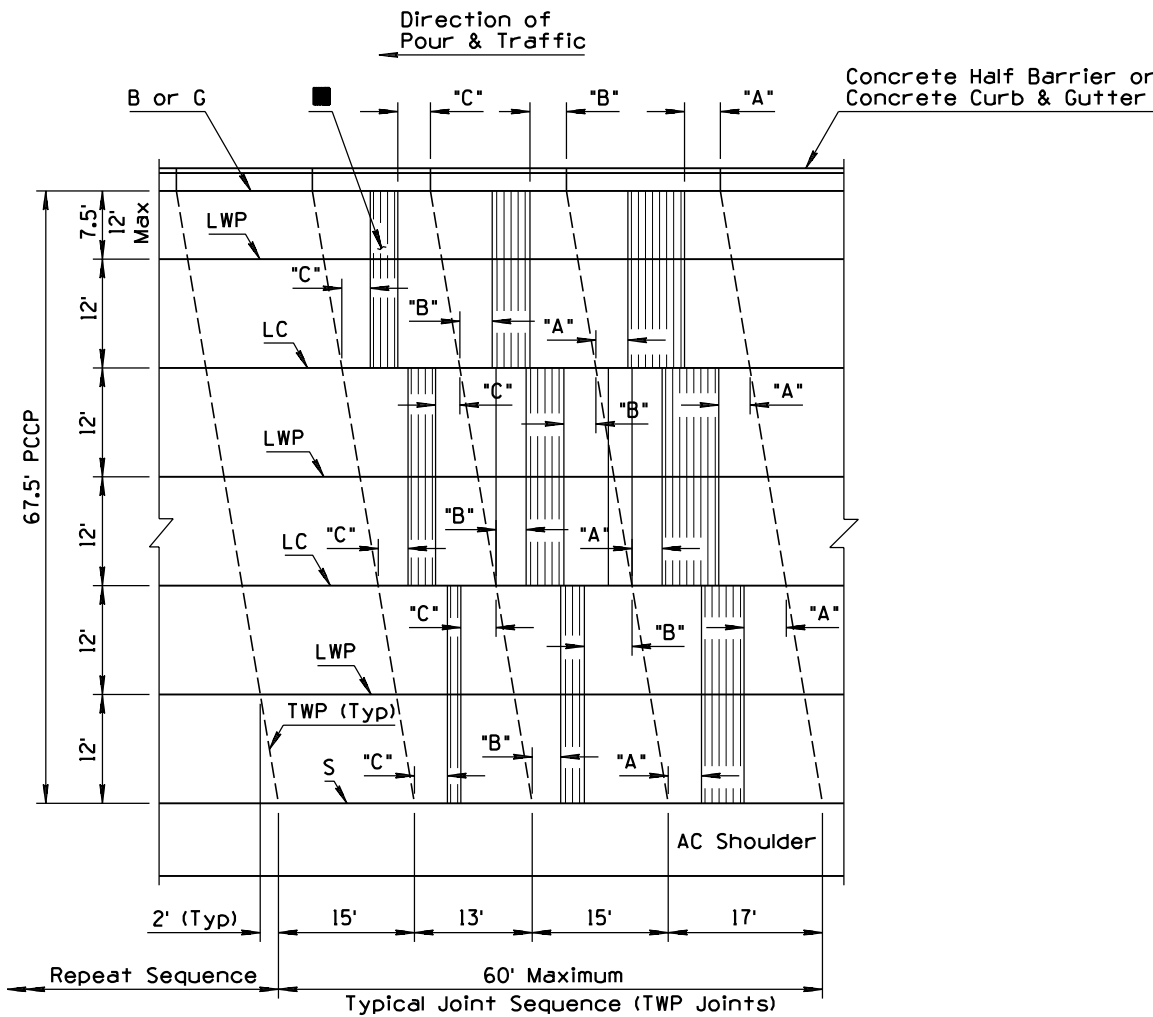
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
 3. "A" shall equal 4' minimum (Typ)
"B" shall equal 3' minimum (Typ)
"C" shall equal 2' minimum (Typ)
 4. See Std Dwg C-07.01 for PCCP joints and additional notes.
 5. All transverse joints shall align with joints in adjacent slabs.
 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
 - ① 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transverse Construction Joint (TC) Allowable Limits (Typ)

APPROVED FOR DESIGN <i>May Viana</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS ③	DRAWING NO. C-07.03 Sheet 2 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN
70' PCCP



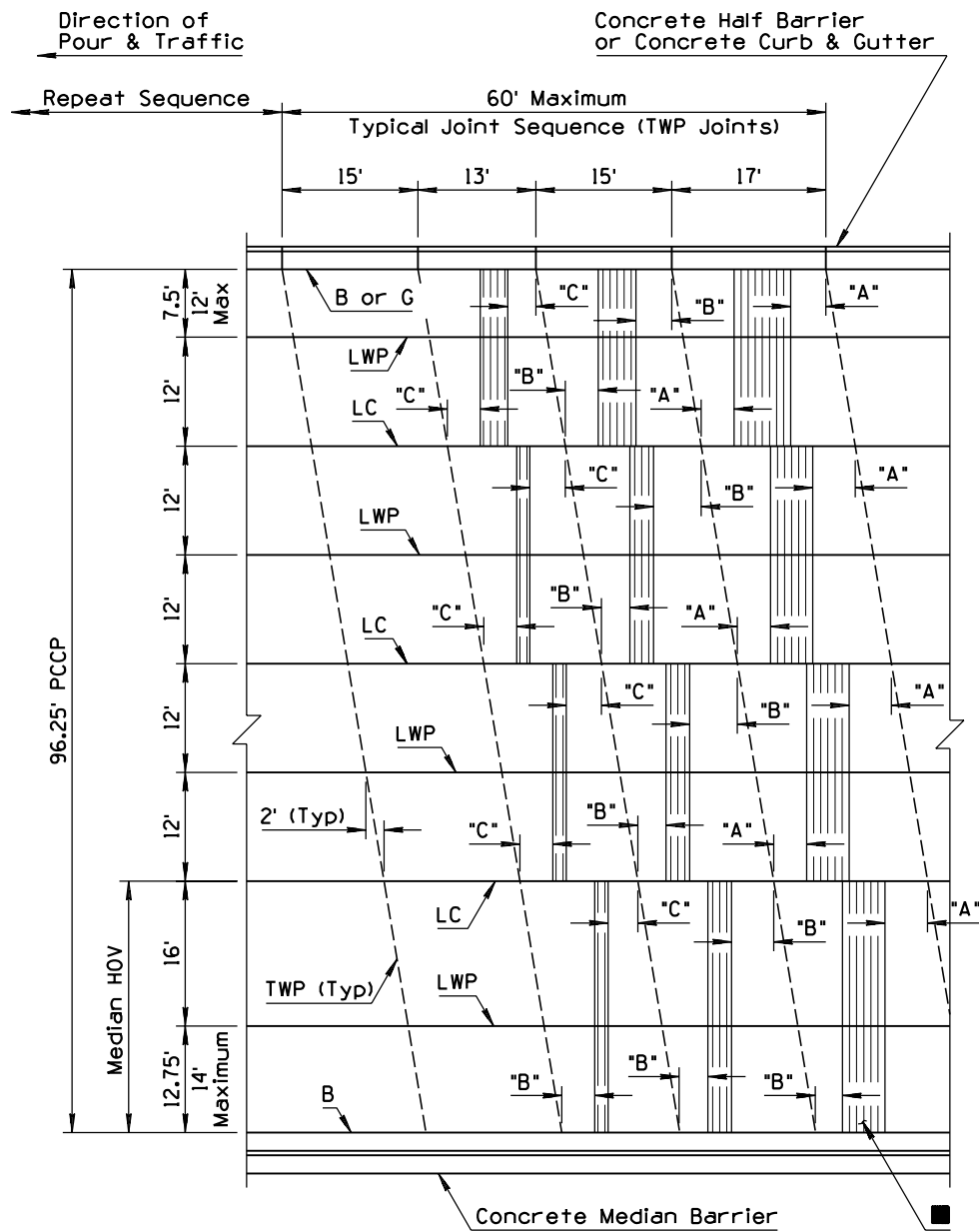
PLAN
67.5' PCCP

GENERAL NOTES

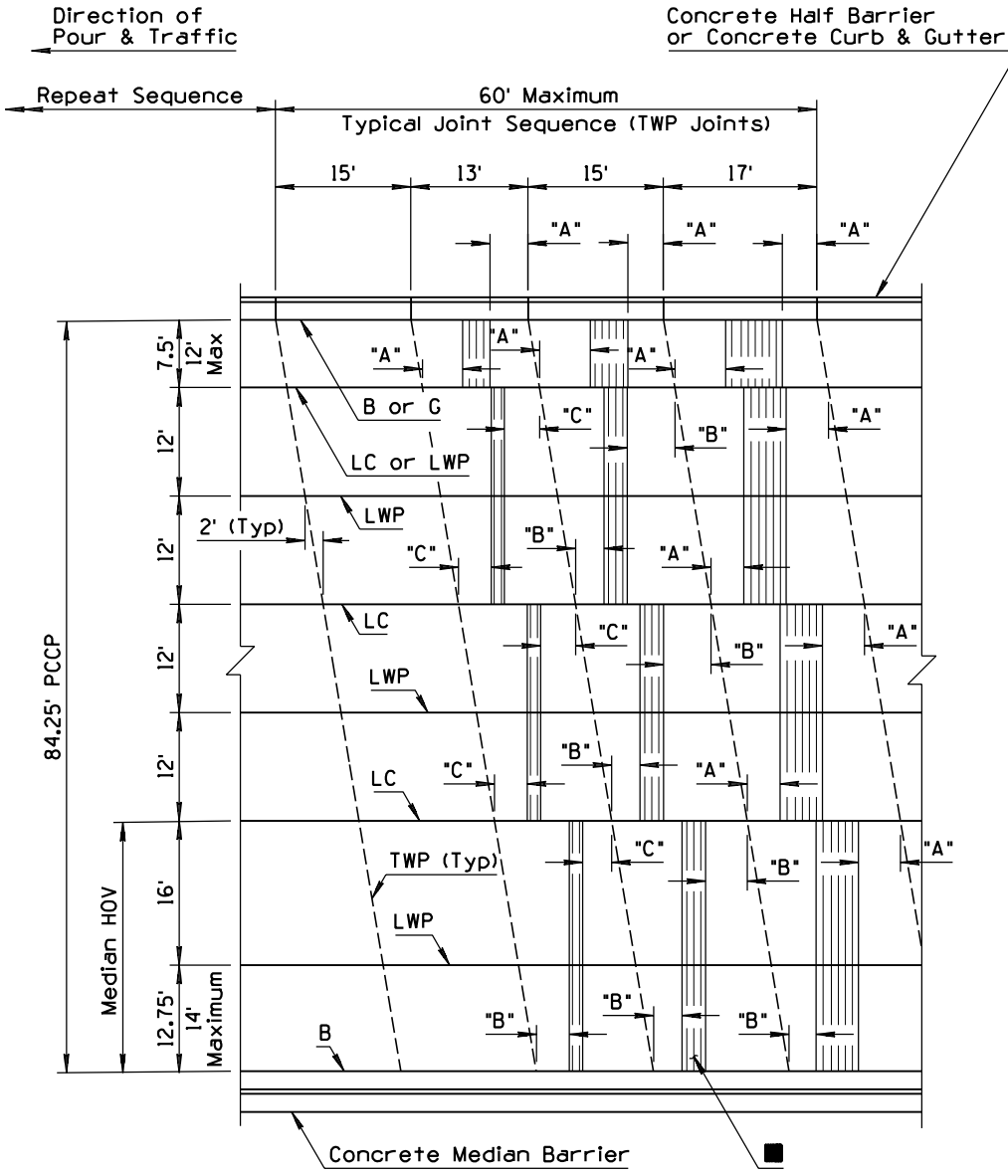
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
 3. "A" shall equal 4' minimum (Typ)
"B" shall equal 3' minimum (Typ)
"C" shall equal 2' minimum (Typ)
 4. See Std Dwg C-07.01 for PCCP joints and additional notes.
 5. All transverse joints shall align with joints in adjacent slabs.
 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transverse Construction Joint (TC) Allowable Limits (Typ)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS	DRAWING NO. C-07.03 Sheet 3 of 8

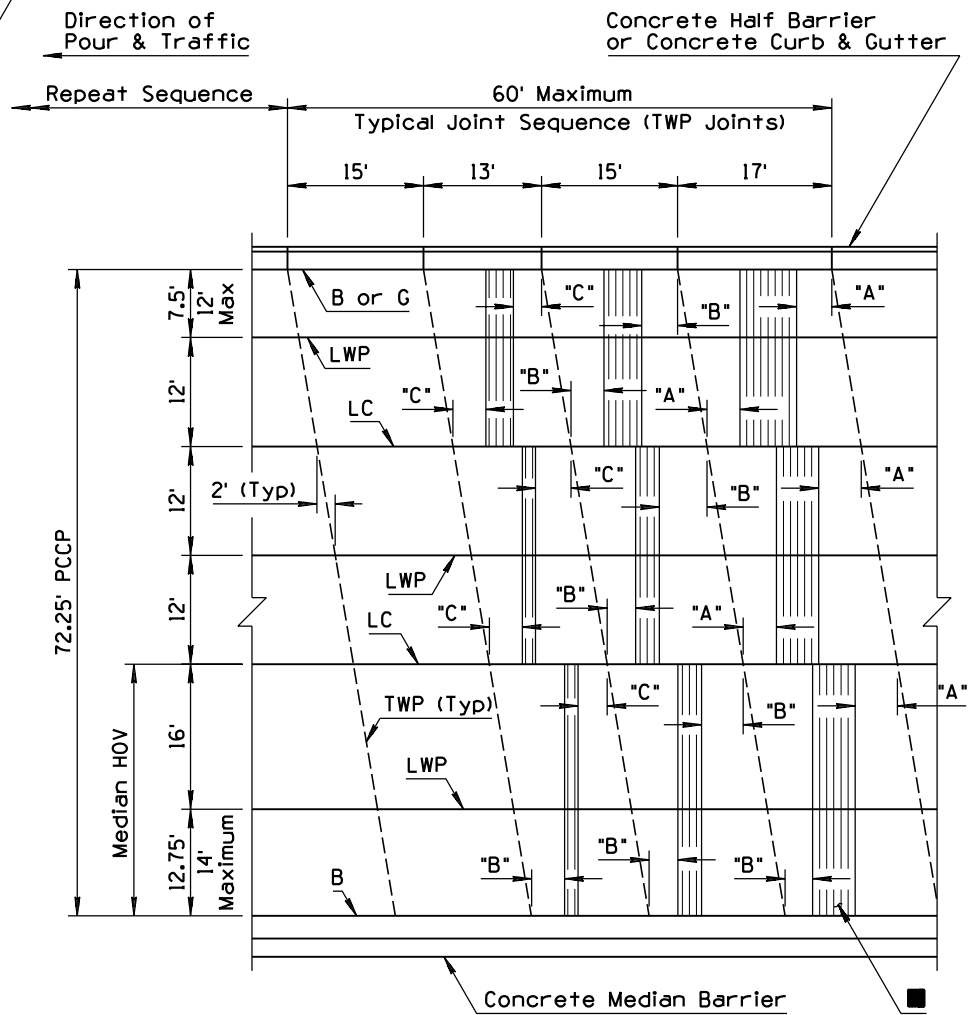
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN ②
96.25' PCCP



PLAN ②
84.25' PCCP



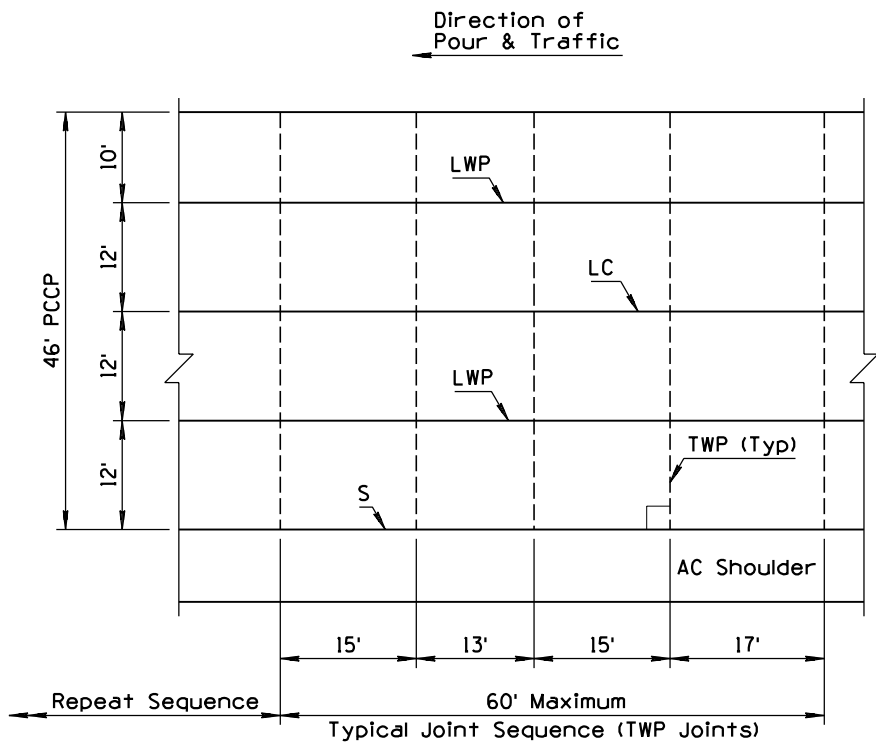
PLAN ②
72.25' PCCP

GENERAL NOTES

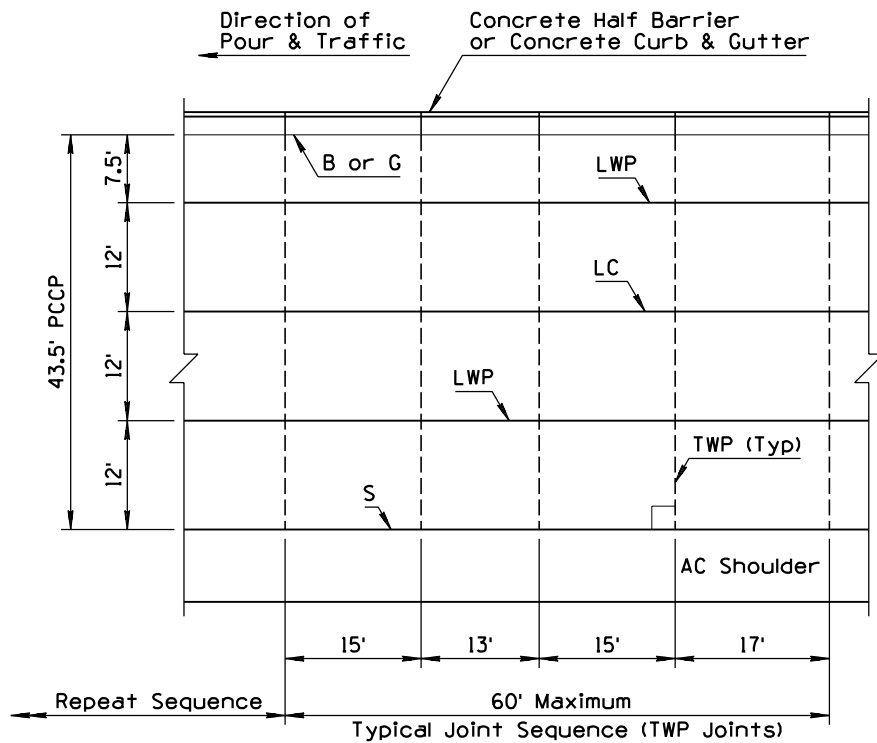
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
 3. "A" shall equal 4' minimum (Typ)
"B" shall equal 3' minimum (Typ)
"C" shall equal 2' minimum (Typ)
 4. See Std Dwg C-07.01 for PCCP joints and additional notes.
 5. All transverse joints shall align with joints in adjacent slabs.
 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
 - ① 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transverse Construction Joint (TC) Allowable Limits (Typ)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS ③	DRAWING NO. C-07.03 Sheet 4 of 8

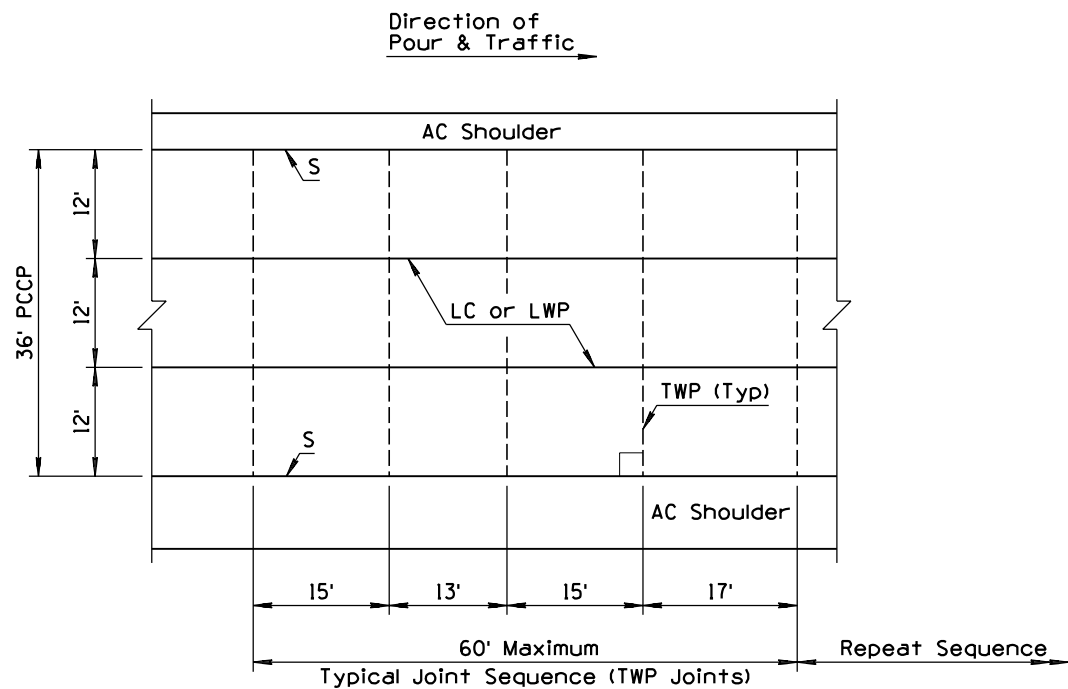
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



PLAN
46' PCCP



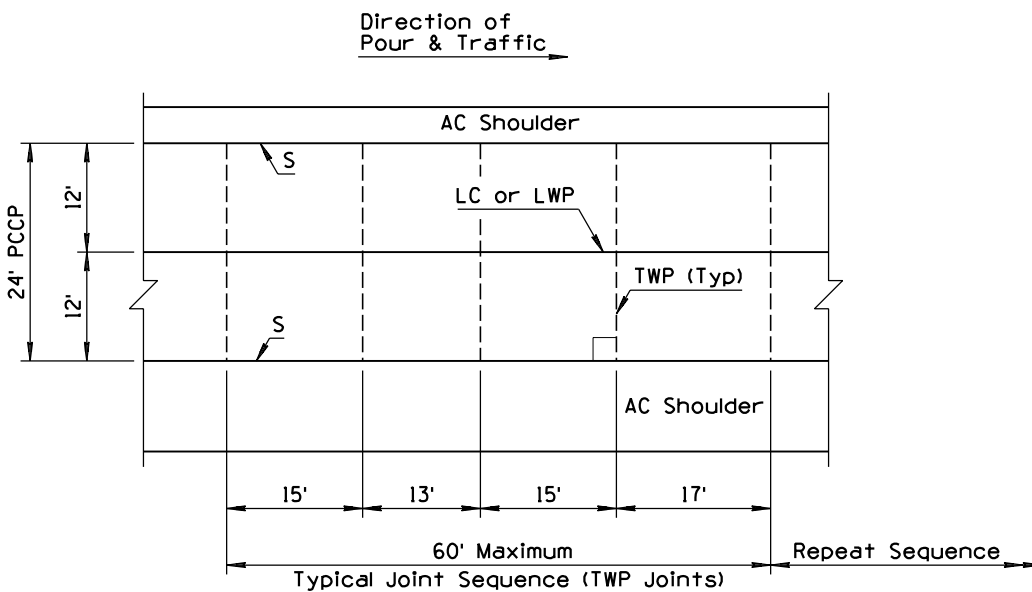
PLAN
43.5' PCCP



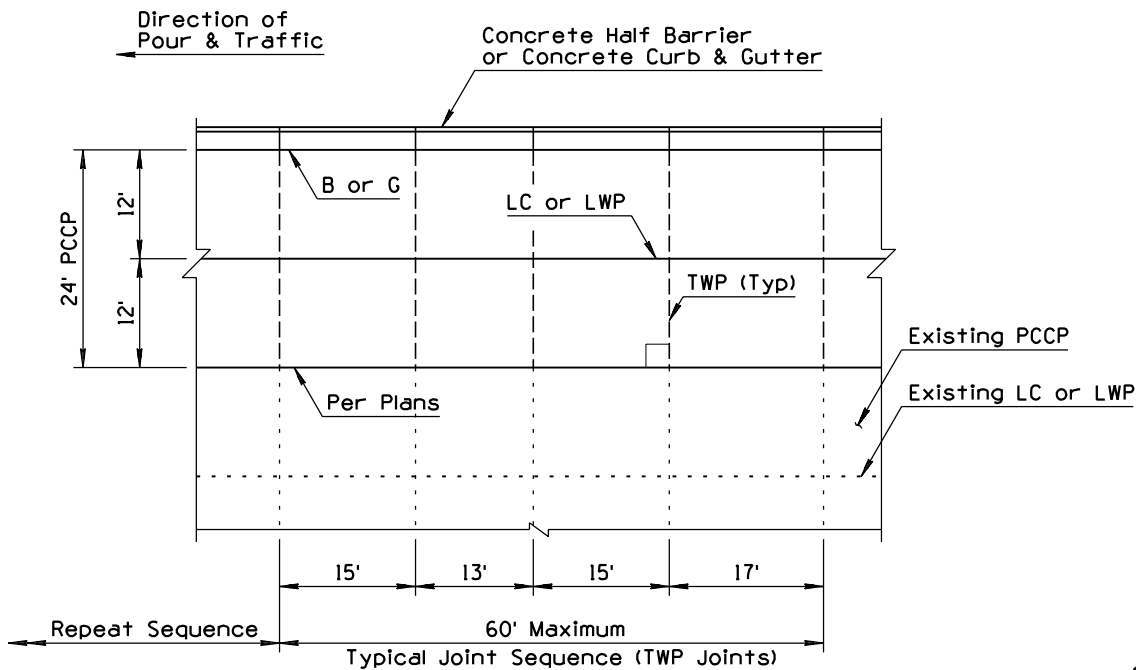
PLAN
36' PCCP

GENERAL NOTES

1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
3. See Std Dwg C-07.01 for PCCP joints and additional notes.
4. All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8. Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



PLAN
24' PCCP



PLAN
24' PCCP
(WIDENING)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 5 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			

GENERAL NOTES

- ①
1.

LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2.

Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
3.

See Std Dwg C-07.01 for PCCP joints and additional notes.
4.

All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5.

At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6.

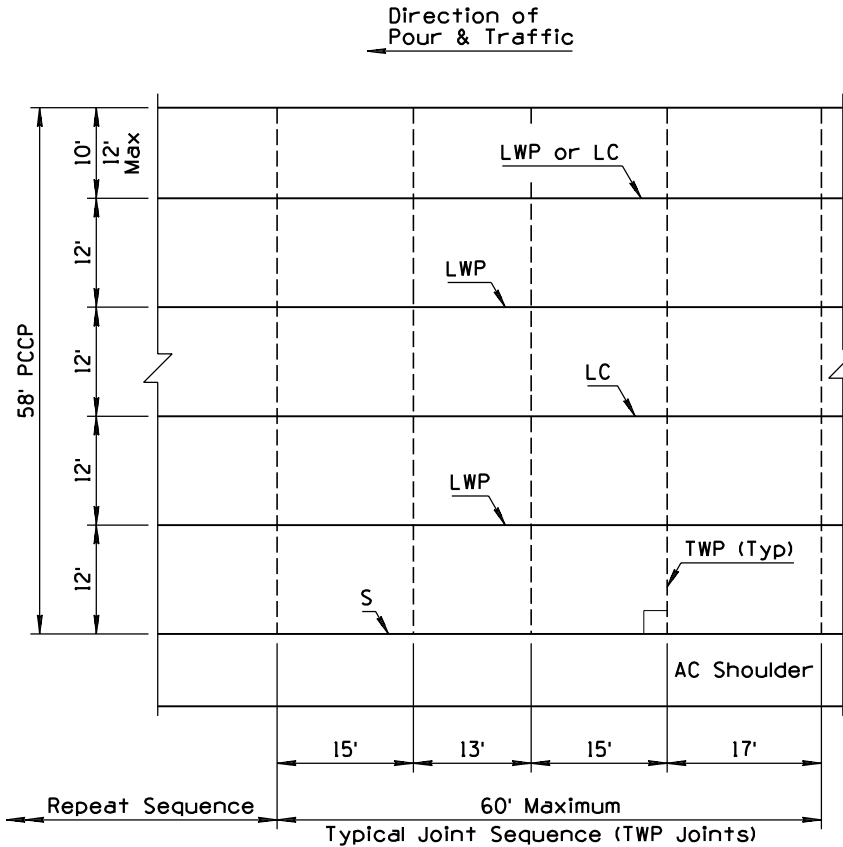
See Std Dwg C-05.10 for curb and gutter joint requirements.
7.

The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8.

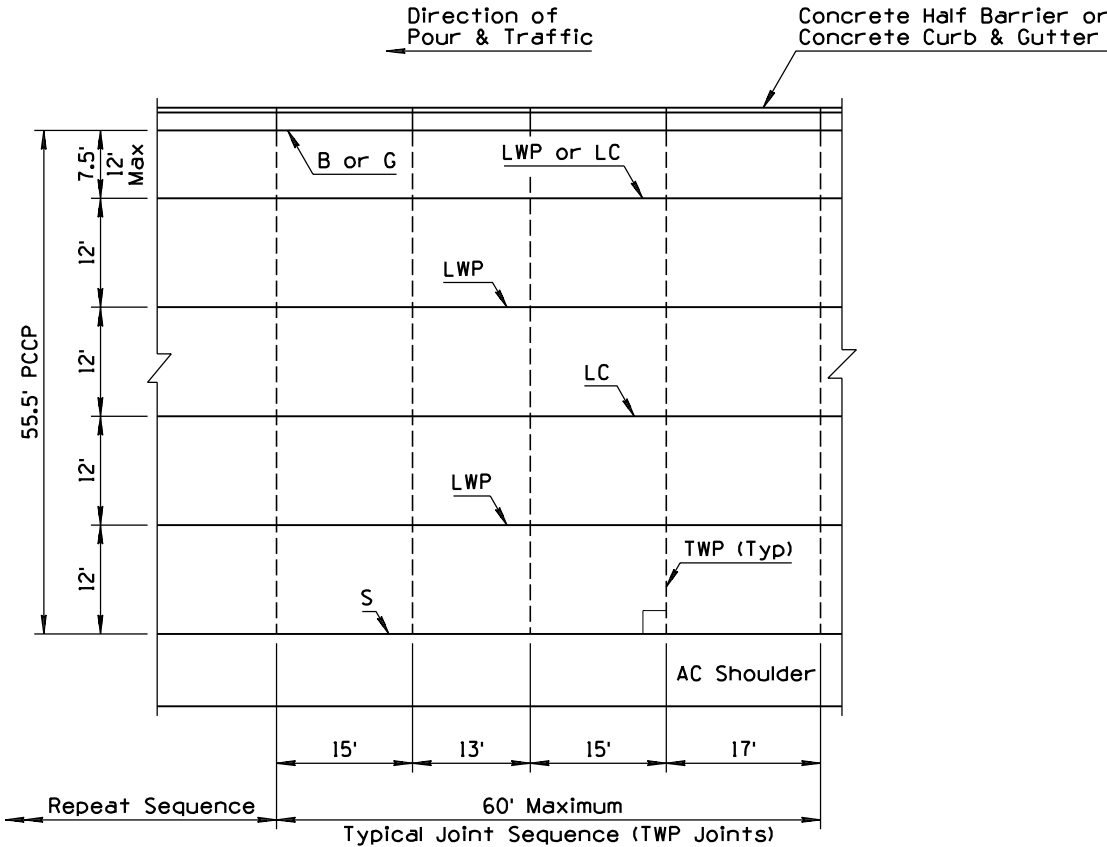
Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
- ①

9.

LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



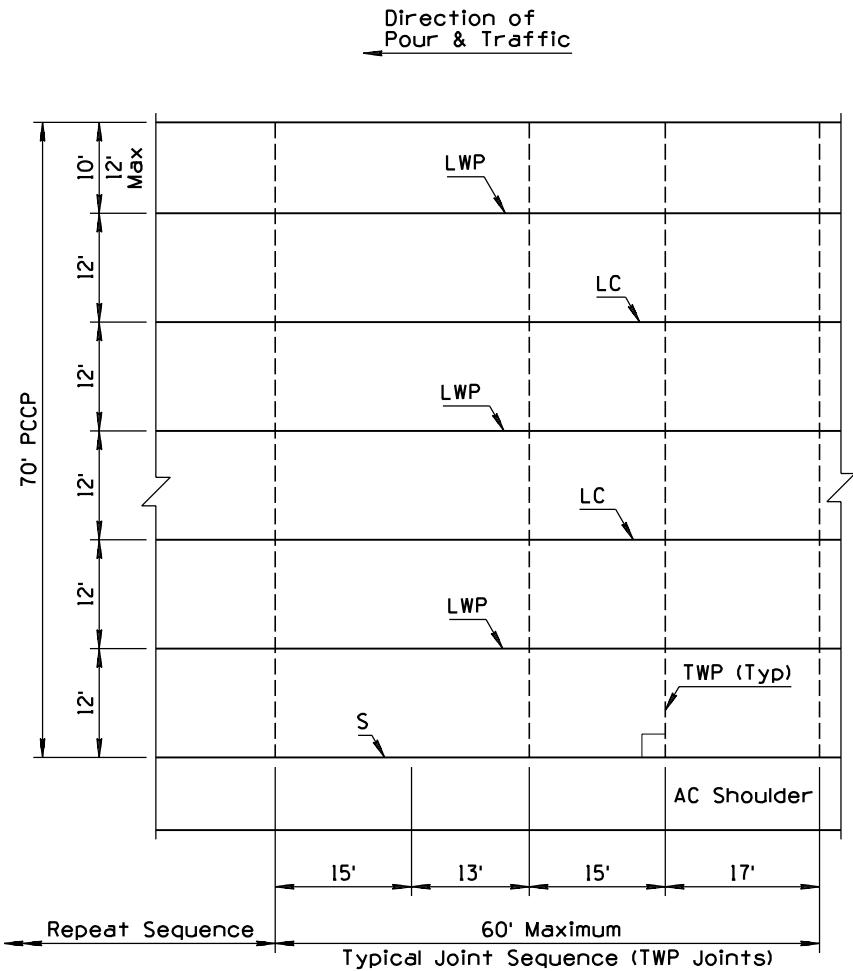
PLAN
58' PCCP



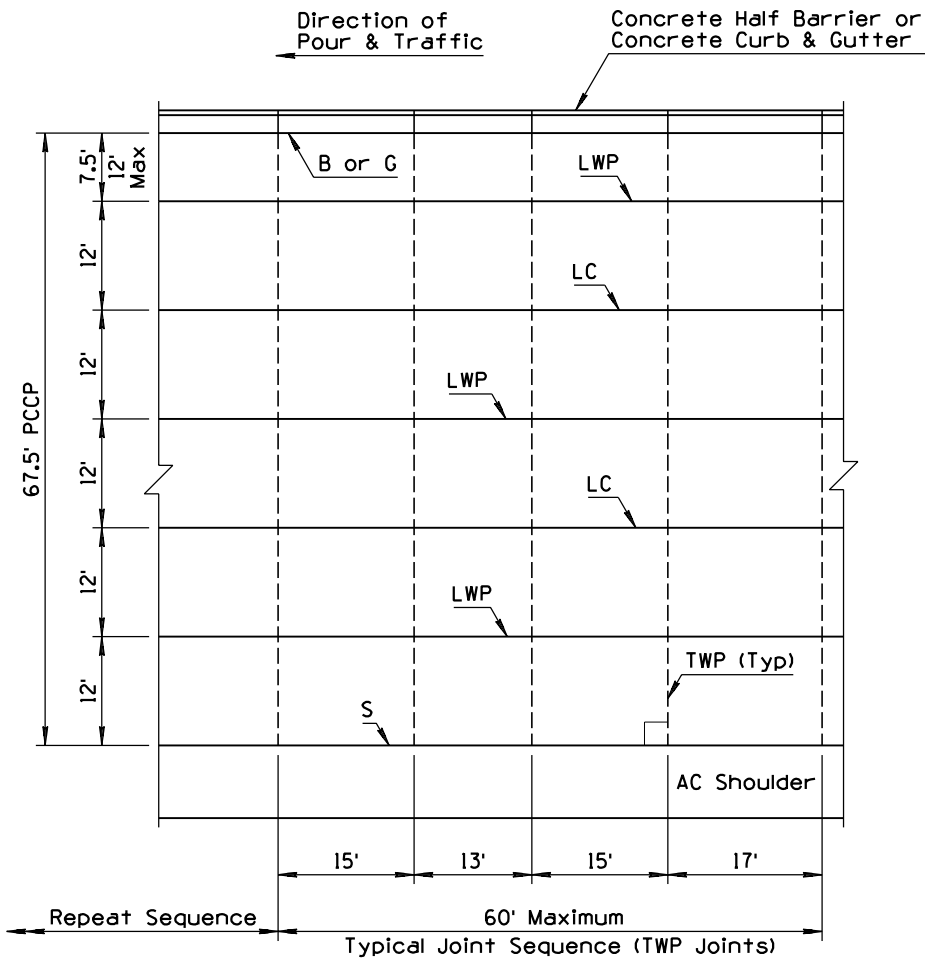
PLAN
55.5' PCCP

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 6 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



PLAN
70' PCCP



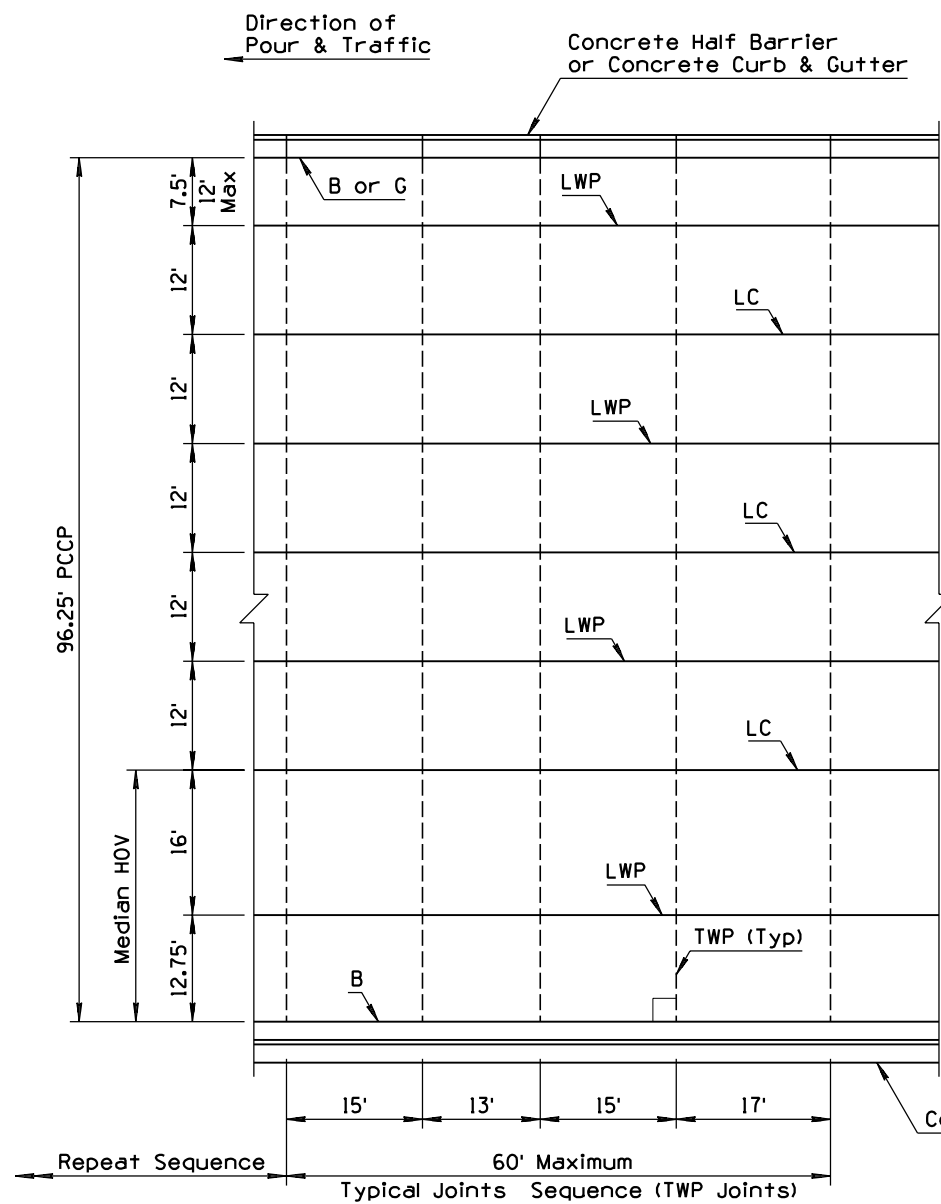
PLAN
67.5' PCCP

GENERAL NOTES

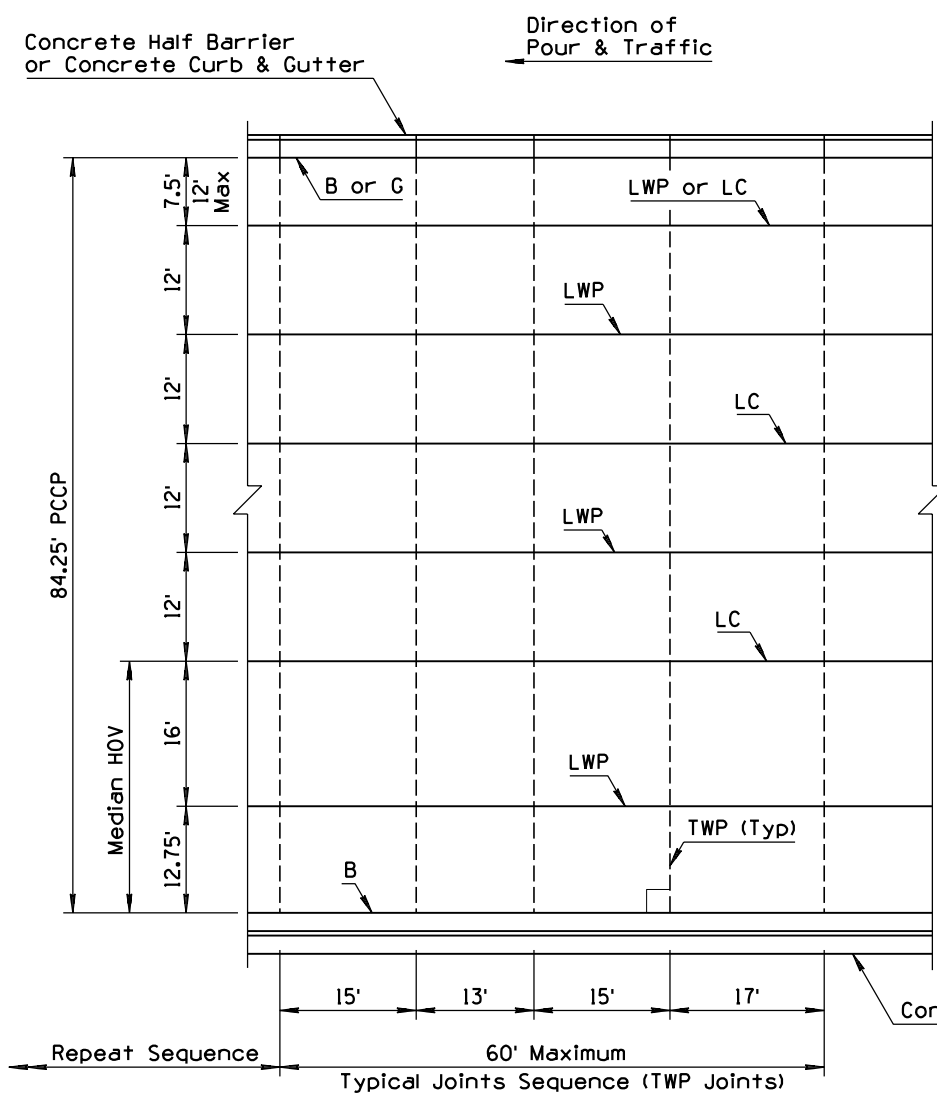
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
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3. See Std Dwg C-07.01 for PCCP joints and additional notes.
4. All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8. Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 7 of 8

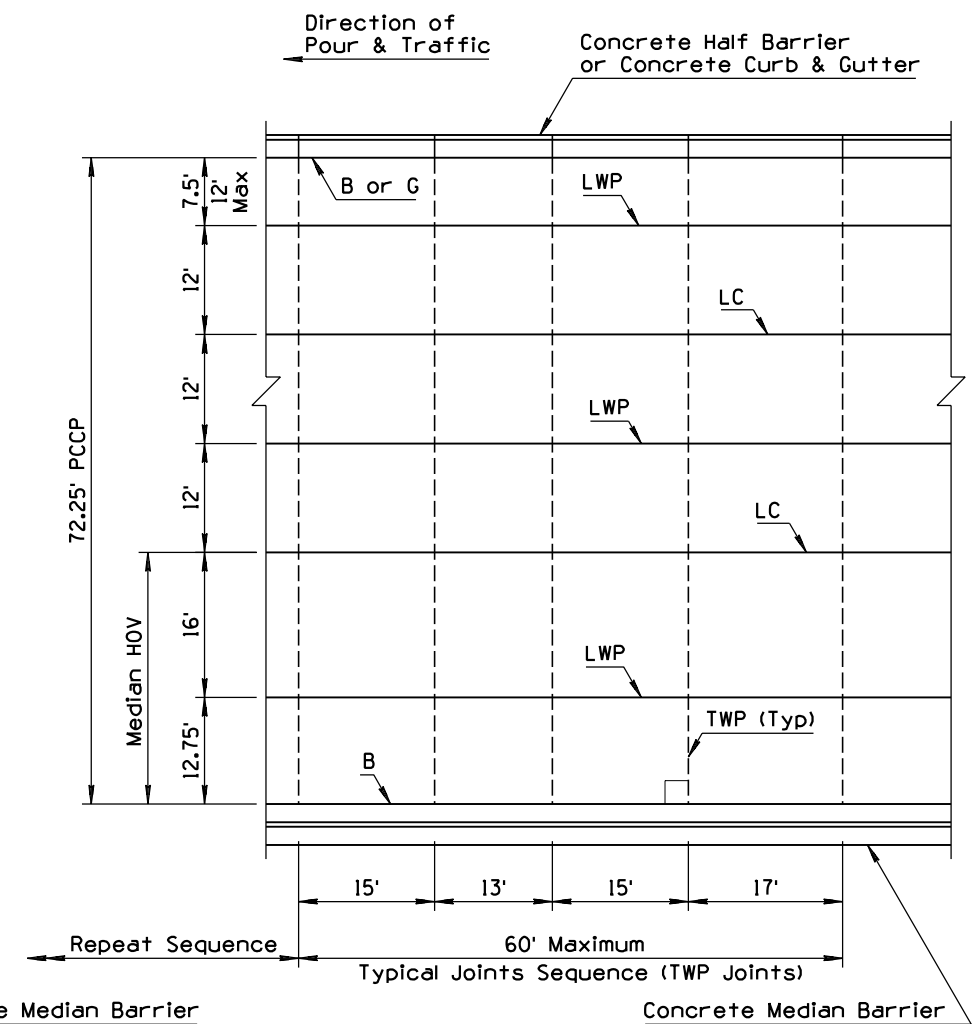
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



PLAN
96.25' PCCP



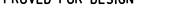

PLAN
84.25' PCCP



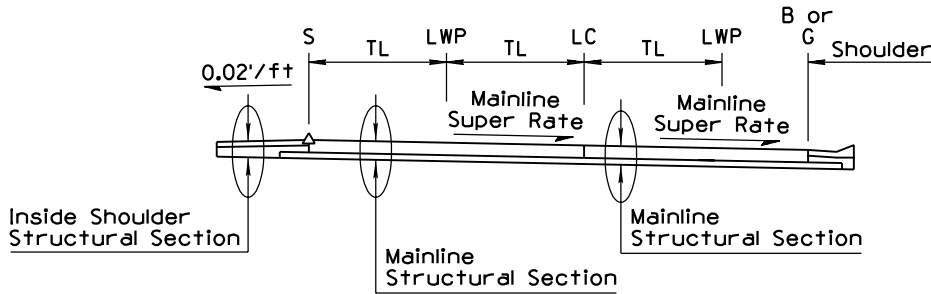
PLAN
72.25' PCCP

GENERAL NOTES

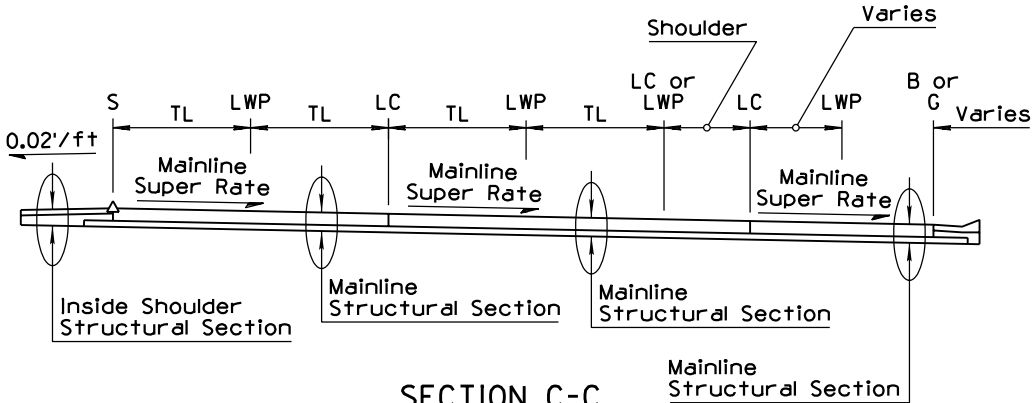
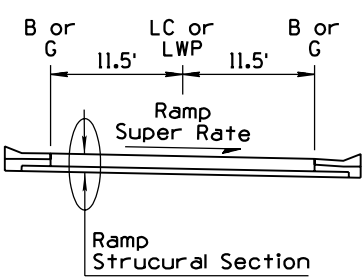
- ① 1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
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8. Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
- ① 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

APPROVED FOR DESIGN 	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		REV. 9/04
APPROVED FOR DISTRIBUTION 	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS (2)		DRAWING NO. C-07.03 Sheet 8 of 8

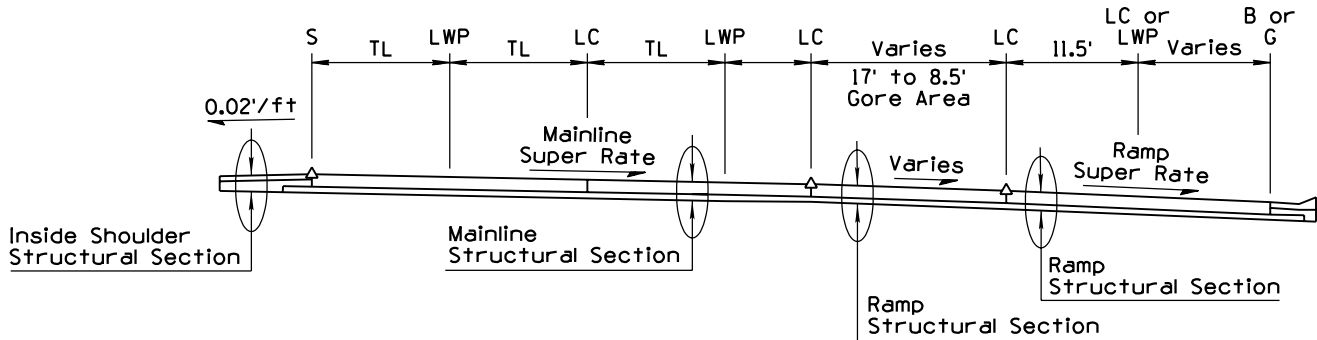
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3			
4			



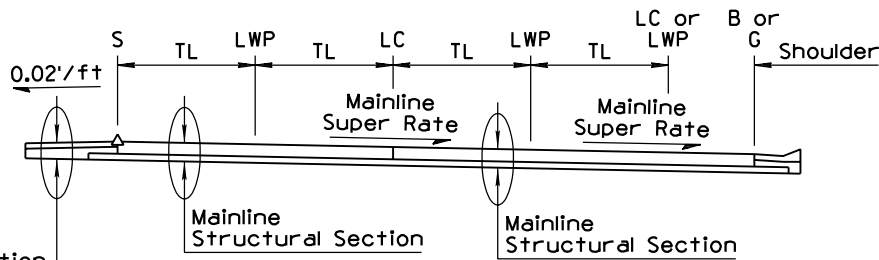
SECTION A-A
MID-RAMP



SECTION C-C
RAMP TAPER



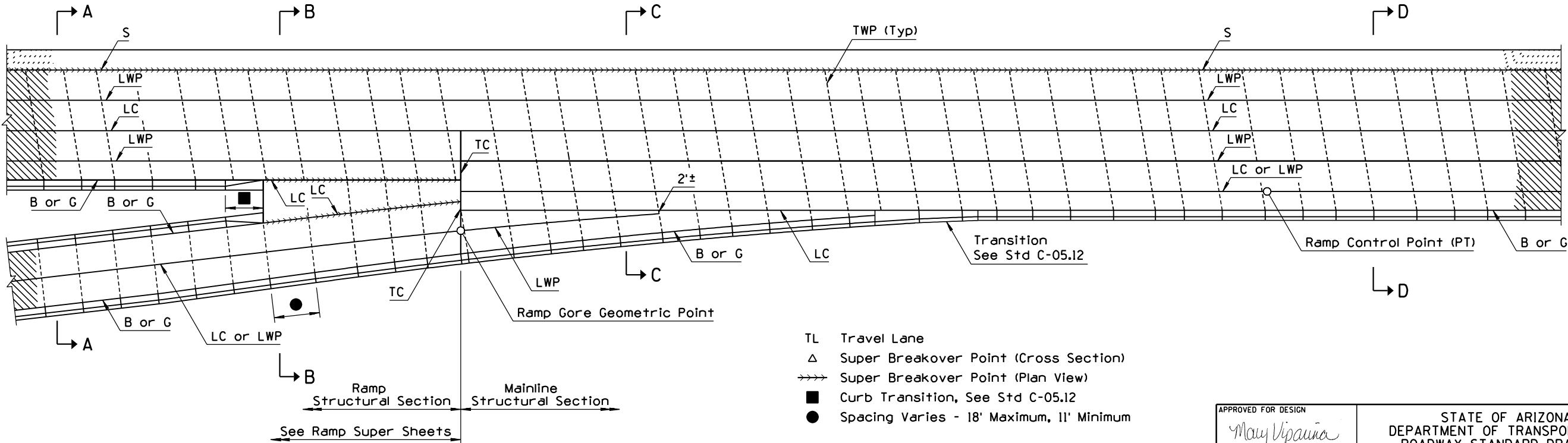
SECTION B-B
GORE AREA



SECTION D-D
MAINLINE

GENERAL NOTES

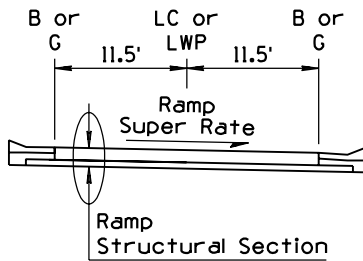
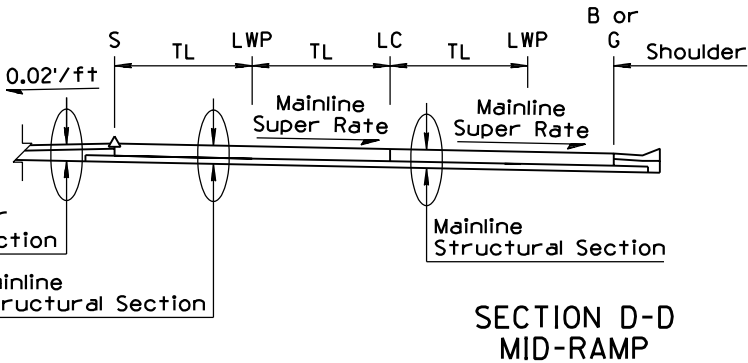
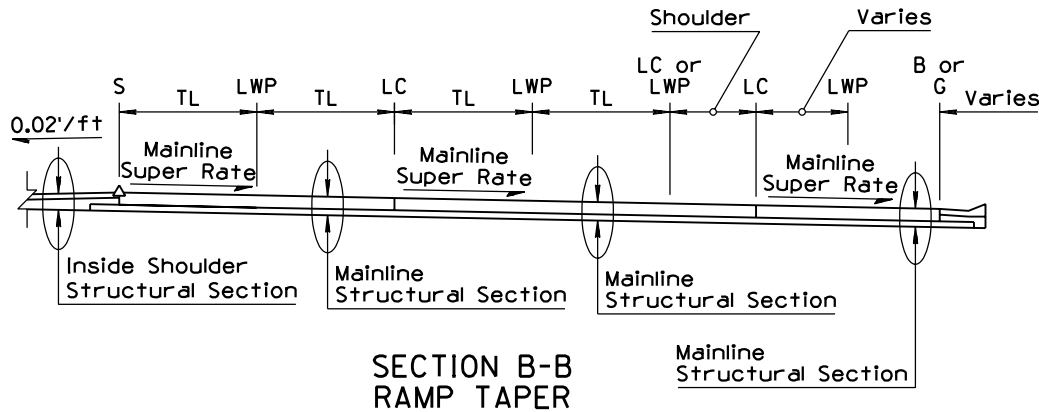
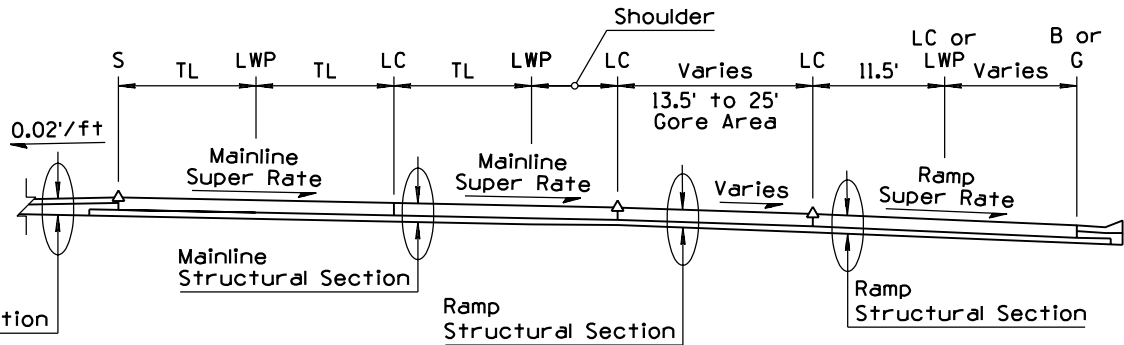
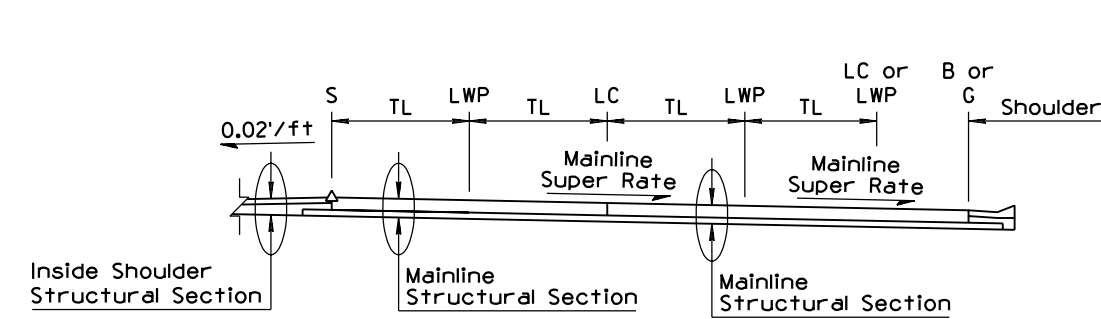
1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. See Std Dwg C-07.01 for joint information.
3. See plans for ramp dimensions.
4. For ramp joint spacing sequence, see Sheet 4 of 5
5. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



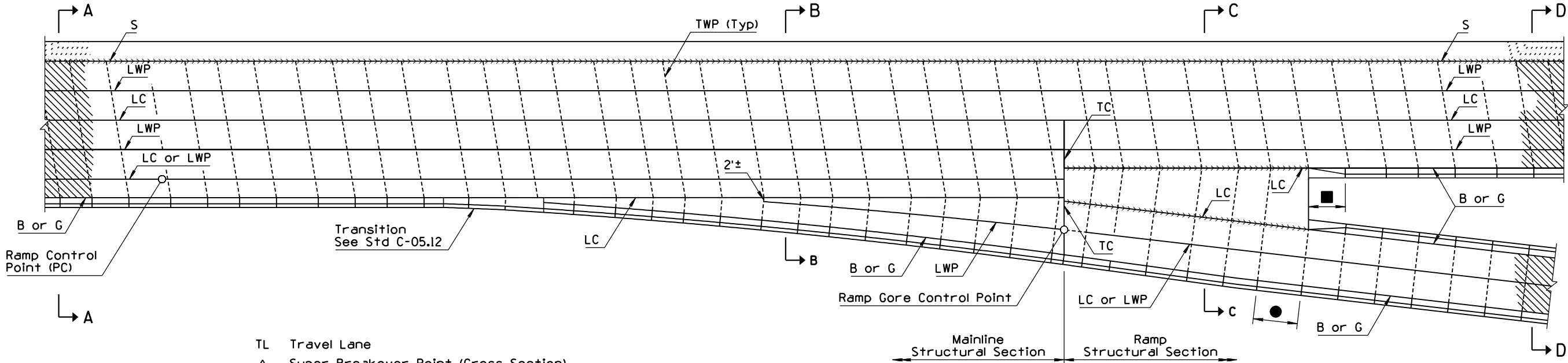
- TL Travel Lane
- △ Super Breakover Point (Cross Section)
- Super Breakover Point (Plan View)
- Curb Transition, See Std C-05.12
- Spacing Varies - 18' Maximum, 11' Minimum

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS PARALLEL TYPE ENTRANCE RAMP WITH AUXILIARY LANE	DRAWING NO. ① C-07.04 Sheet 1 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING; CONVERTED FROM DETAIL X7053	RLF	9/04
2			
3			
4			



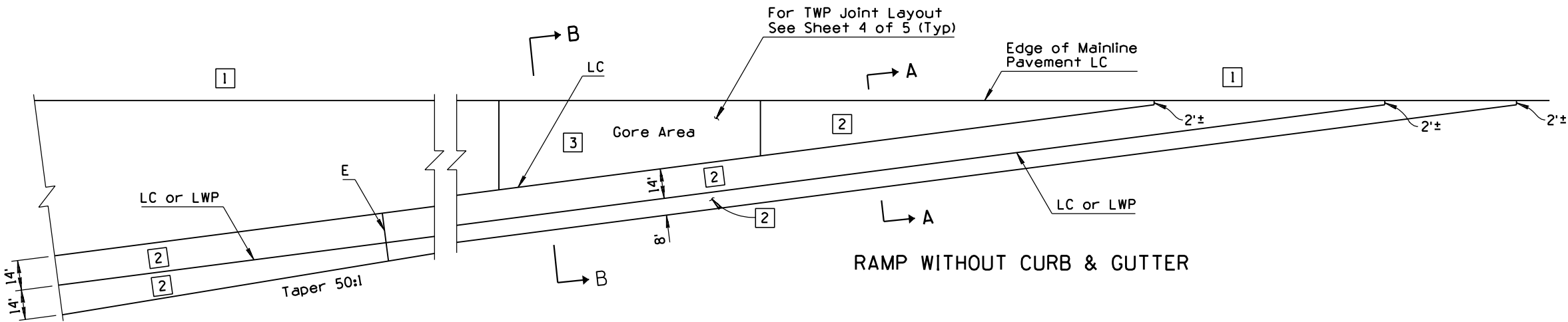
- ### GENERAL NOTES
1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 2. See Std Dwg C-07.01 for joint information.
 3. See plans for ramp dimensions.
 4. For ramp joint spacing sequence, see Sheet 4 of 5.
 5. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



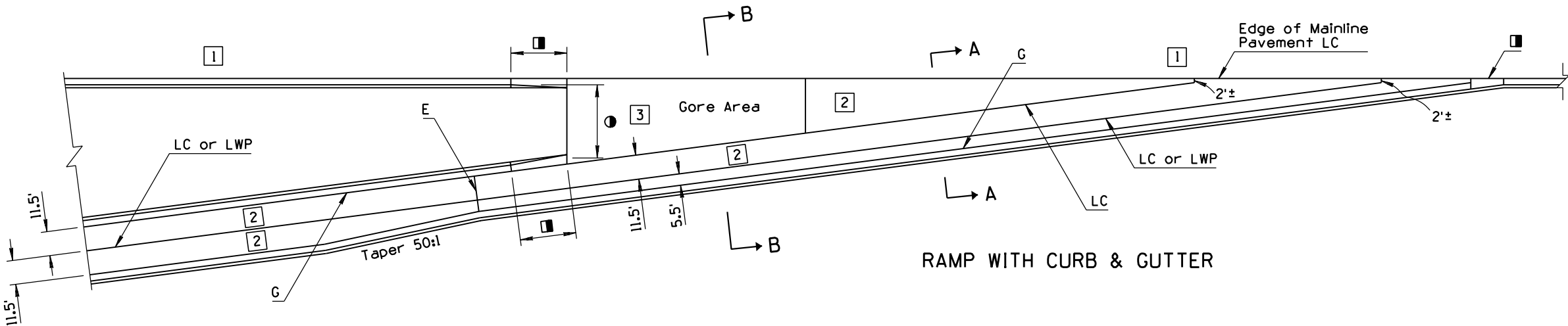
- TL Travel Lane
- △ Super Breakover Point (Cross Section)
- Super Breakover Point (Plan View)
- Curb Transition, See Std C-05.12
- Spacing Varies - 18' Maximum, 11' Minimum

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS PARALLEL TYPE EXIT RAMP WITH AUXILIARY LANE	DRAWING NO. C-07.04 Sheet 2 of 5

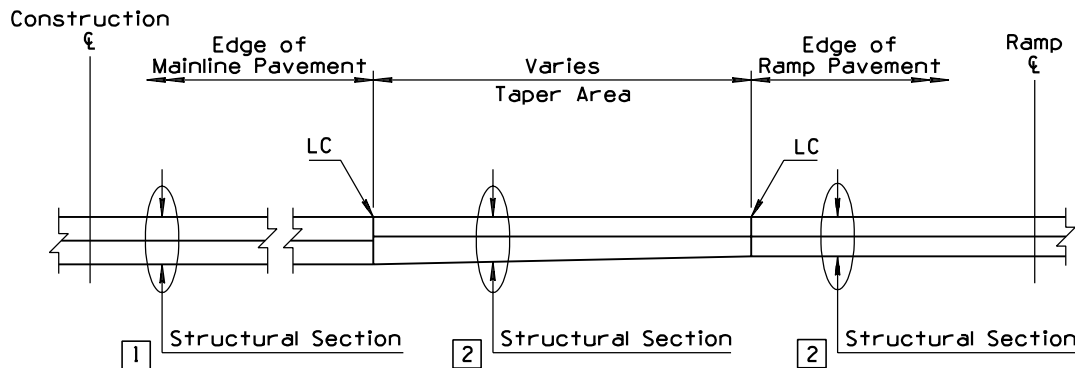
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-07.04 TO C-07.04, SHEET 1 OF 5	RLF	9/04
2			
3			
4			



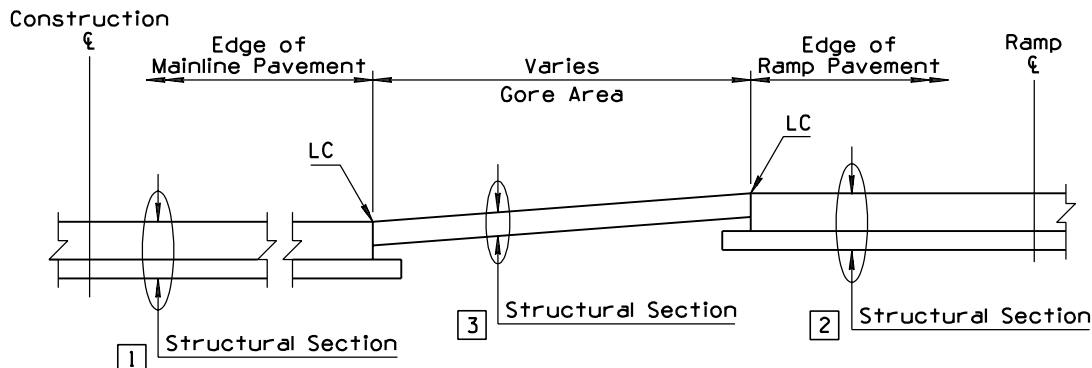
RAMP WITHOUT CURB & GUTTER



RAMP WITH CURB & GUTTER



SECTION A-A
RAMP TAPER



SECTION B-B
GORE AREA

GENERAL NOTES

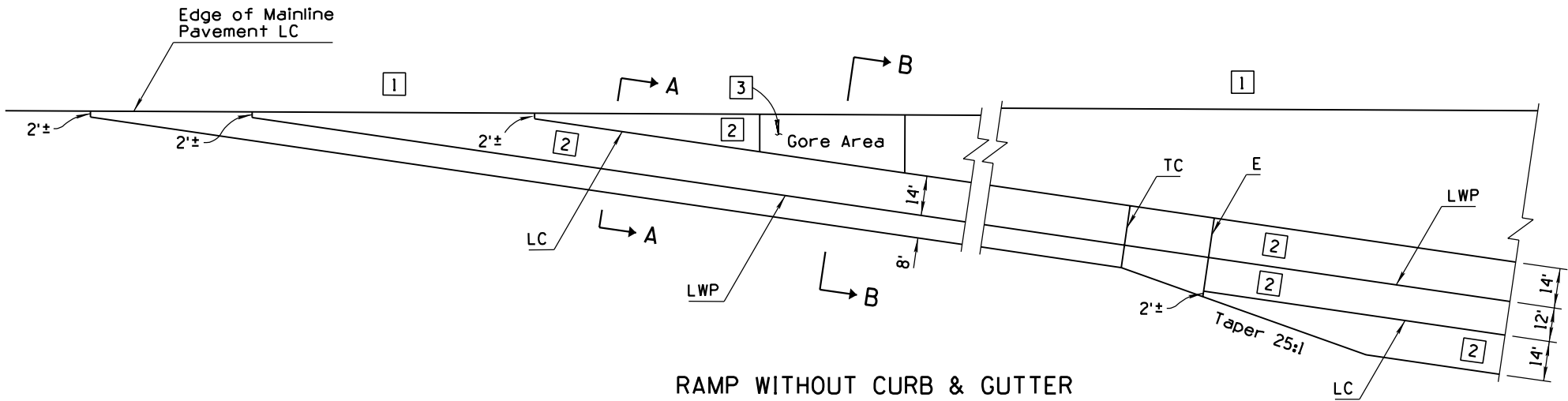
1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Dimensions with a tolerance may be adjusted to align to the nearest transverse weakened plane construction joint as directed.
3. See Std Dwg C-07.01 for joint information.
4. See plans for ramp dimensions.
5. For ramp joint spacing sequence, see Sheet 4 of 5.
6. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

- Transition, See Std Dwg C-05.12
- 12' Face of Curb to Face of Curb on Entrance Ramp

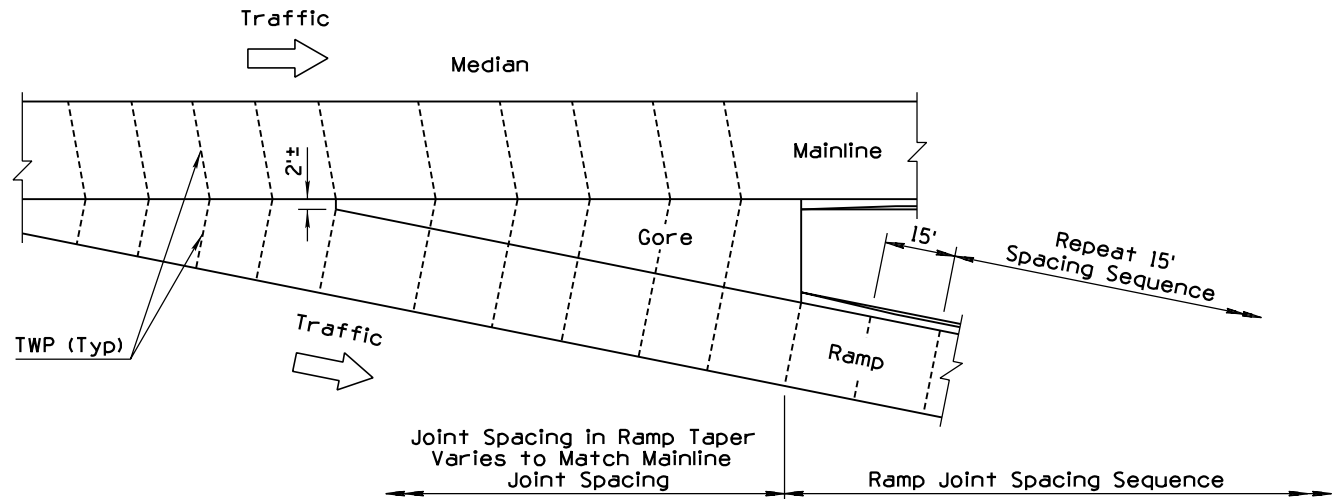
- 1 Mainline Structural Section
See Plans
- 2 Ramp Structural Section
See Plans
- 3 Gore Structural Section
See Plans

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS TAPER TYPE ENTRANCE RAMP	DRAWING NO. ① C-07.04 Sheet 3 of 5

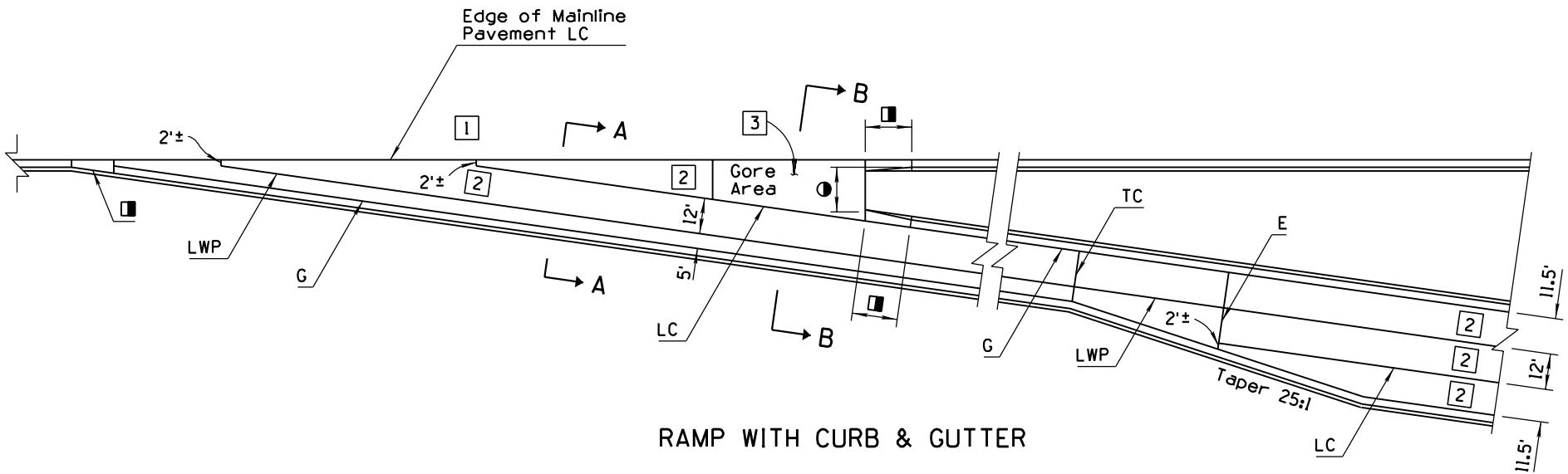
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-07.05 TO C-07.04, SHEET 4 OF 5	RLF	9/04
2			
3			
4			



RAMP WITHOUT CURB & GUTTER



TYPICAL TRANSVERSE WEAKENED PLANE
JOINT LAYOUT AT GORE AREAS
Exit Ramp Shown
Entrance Ramp Similar



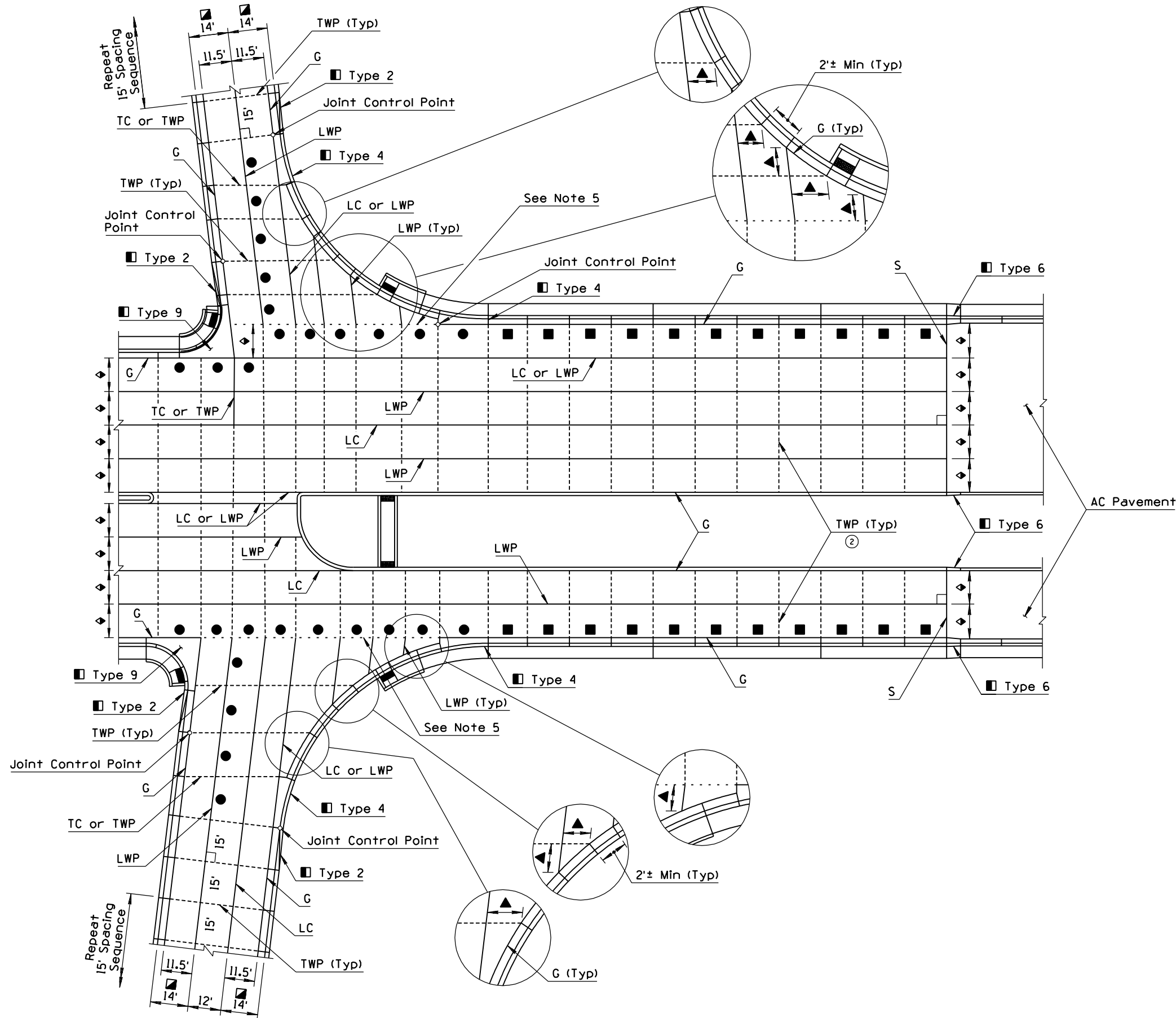
RAMP WITH CURB & GUTTER

GENERAL NOTES

1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Dimensions with a tolerance may be adjusted to align to the nearest transverse weakened plane construction joint as directed.
3. See Std Dwg C-07.01 for joint information.
4. See plans for ramp dimensions.
- Transition, See Std Dwg C-05.12
- 20' Face of Curb to Face of Curb on Exit Ramp
- 1 Mainline Structural Section
See Plans
- 2 Ramp Structural Section
See Plans
- 3 Gore Structural Section
See Plans

APPROVED FOR DESIGN <i>May Viana</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	PCCP JOINT LOCATIONS TAPER TYPE EXIT RAMP	DRAWING NO. 1 C-07.04 Sheet 4 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-07.10 TO C-07.04, SHEET 5 OF 5	RLF	9/04
2	REARRANGED DRAWING	RT/RLF	9/04
3			
4			



GENERAL NOTES

1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. See Std Dwg C-07.01 for joint information.
3. The ratio of transverse to longitudinal joint spacing shall be greater than $\frac{2}{3}$ but not more than $\frac{1}{2}$.
4. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
5. See Plans for Crossroad Paving Type E or H Joint if PCC Paving S Joint if AC Paving
6. Transverse joints shall be perpendicular (90°) to the longitudinal joints, except as shown at the ramp terminal.

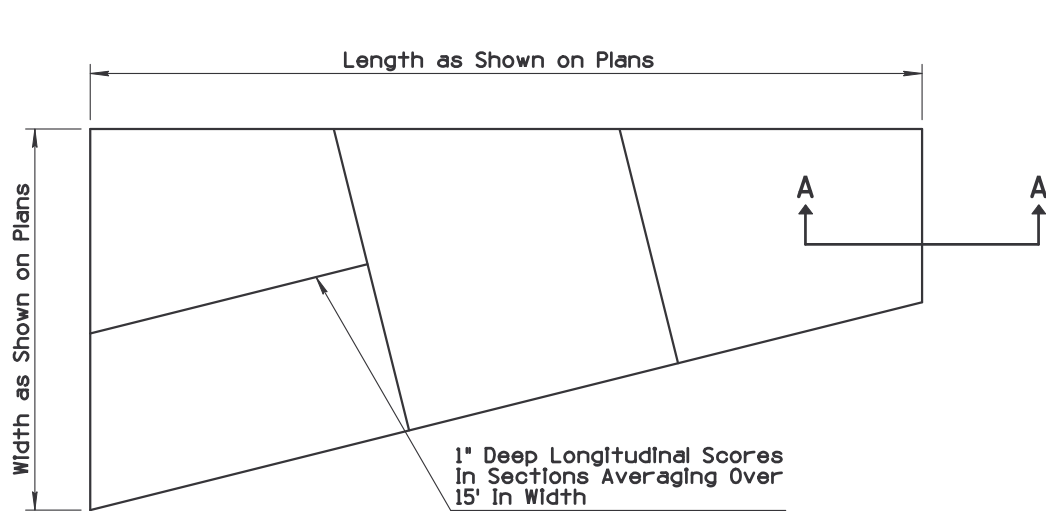
- ▲ 6' Minimum
- Varies - 18' Maximum
11' Minimum
- Varies - 12' when adjacent gutter widths are 2' or less
- 15' when adjacent gutter widths are greater than 2'
- ▣ Without curb and gutter
- ▣ Transition, See Std Dwg C-05.12
- ◆ Varies - 12' Typical or As Shown on Plans
17' Maximum

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS CROSSROAD AND RAMP TERMINI	DRAWING NO. ① C-07.04 Sheet 5 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED PLAN VIEW AND SECTION	RLF	9/04
2	REVISED & RENAMED SECTION	RLF	9/04
3			
4			

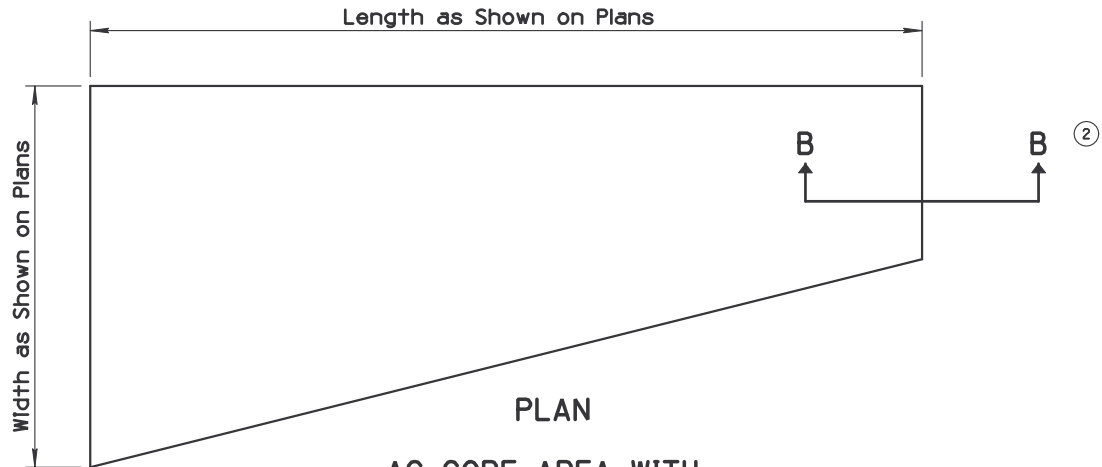
GENERAL NOTES

- Paved gore area shall be Class S Concrete, $f'_c=4000$ PSI or AC as shown on plans.
- See Std Dwgs C-07.01 and C-07.04 for joint layout and details.

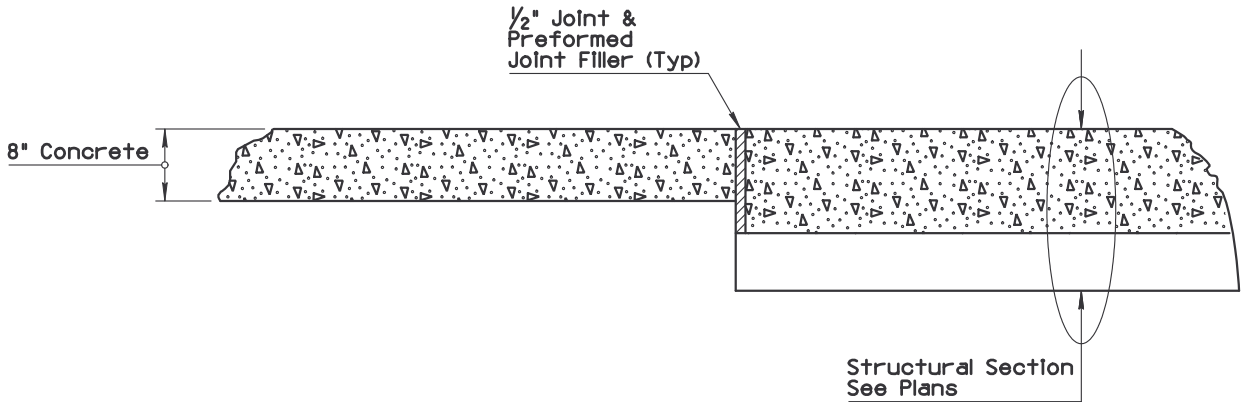


PLAN
CONCRETE GORE AREA
WITH ABUTTING CONCRETE PAVEMENT

1

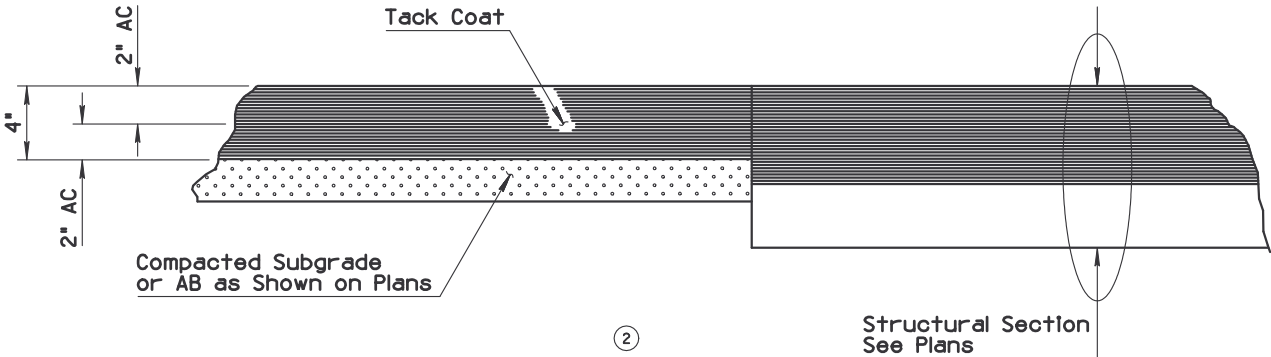


PLAN
AC GORE AREA WITH
ABUTTING AC PAVEMENT



SECTION A-A

1



SECTION B-B

2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>[Signature]</i>	PAVED GORE AREA	DRAWING NO. C-08.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD DRAWING FROM C-10.03 TO C-10.00	RLF	9/04
2	REVISED BARRIER TRANSITION	RLF	9/04
3	REVISED NAMING CONVENTION	RLF	9/04
4			

W-Beam Guardrail End Anchor
Std Dwg C-10.08 (when Called for
on Plans) Measurement (Ea)
See Note 3

③

W-Beam Guardrail
Measurement (Lin Ft)

Guardrail End Terminal
Measurement (Ea)
37'-6" or 50'-0"

12'-6"

W-Beam Guardrail
Measurement (Lin Ft)

Std Dwg C-10.06
Nested Steel W-Beam
Type 1, 2, or 3
Measurement (Lin Ft)
25'-0" or 37'-6"
See Note 4

Guardrail End Terminal
Measurement (Ea)
37'-6" or 50'-0"

Bolted Anchor
for Guardrail
Std Dwg C-10.07
Measurement (Ea)
Number Per Plans

Shallow
Box
Culvert

Shallow
Pipe or
Spillway/Downdrain Inlet

Std Dwgs C-10.70, 10.71,
10.72 or 10.73
Concrete Half-Barrier
Transition Measurement (Ea)

Std Dwg C-10.32
Departure Thrie-Beam
Guardrail Transition
to Concrete Half Barrier
Measurement (Ea)
See Note 3

Std Dwgs C-10.70, 10.71,
10.72 or 10.73
Concrete Half-Barrier
Transition Measurement (Ea)

②
Std Dwg C-10.30 or C-10.31
Approach Thrie-Beam
Guardrail Transition
to Concrete Half Barrier
Measurement (Ea)

W-Beam Guardrail
Measurement (Lin Ft)

Concrete
Barrier

Caissons or Footings

Caissons or Footings

Traffic

CONCRETE HALF-BARRIER TRANSITION
OFF STRUCTURE

Std Dwg C-10.32 Departure
Thrie-Beam Guardrail Transition
to Concrete Half Barrier
Measurement (Ea)
See Note 3

W-Beam Guardrail
Measurement (Lin Ft)

Bridge Concrete Barrier
See Bridge Sheets

Approach Thrie-Beam
Guardrail Transition
to Concrete Half Barrier
Measurement
See Bridge Sheets

W-Beam Guardrail
Measurement (Lin Ft)

Traffic

Bridge Concrete
Barrier Transition
Measurement
See Bridge Sheets

Bridge Concrete
Barrier Transition
Measurement
See Bridge Sheets

CONCRETE HALF-BARRIER TRANSITION ON STRUCTURE

Concrete Barrier Transitions
Constructed on Top of Wingwalls

GENERAL NOTES

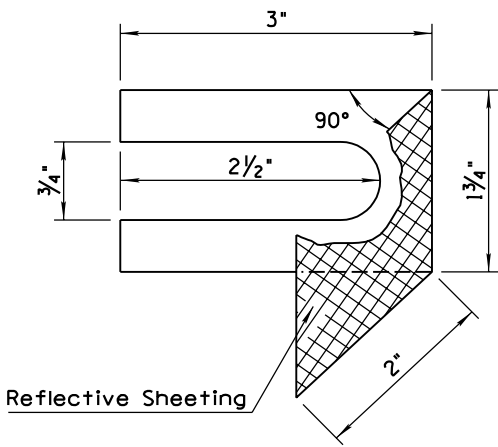
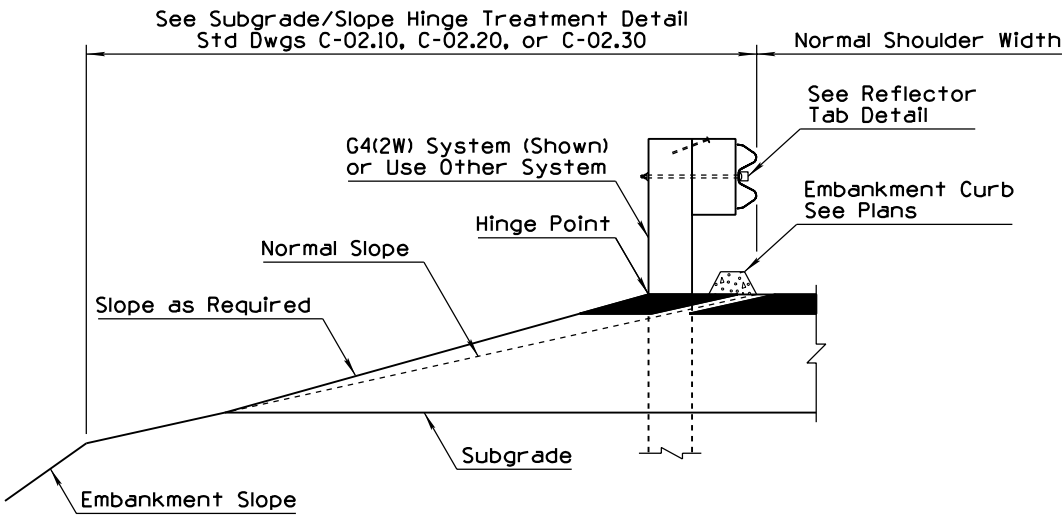
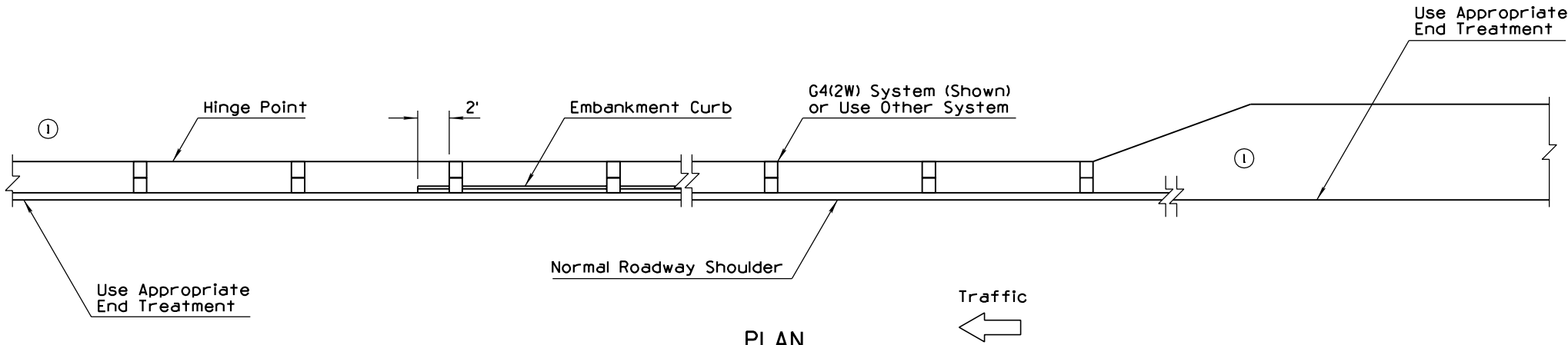
1. Length as shown unless otherwise indicated on project plans.
2. Post type (timber or steel) for transitions shall match post type of adjoining guardrail.
3. Shown for one-way traffic. For two-way traffic, departure requires approach end treatment when located within the clear zone of opposing traffic.
4. See Std Specs for nested guardrail pay item.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GUARDRAIL MEASUREMENT LIMITS	DRAWING NO. ① C-10.00

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
①	MODIFIED PLAN VIEW GRAPHICS/REMOVED WIDTH DIMENSION	RLF	9/04
②	REVISED GENERAL NOTES 3 & 4	RLF	9/04
③	MODIFIED STANDARD DRAWING TITLE	RLF	9/04
④			

GENERAL NOTES

1. All embankment curb shall be protected by guardrail.
2. Guardrail shall extend beyond the limits of embankment curb.
- ② 3. See Std Dwg C-10.00 for measurement limits.
- ② 4. See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.



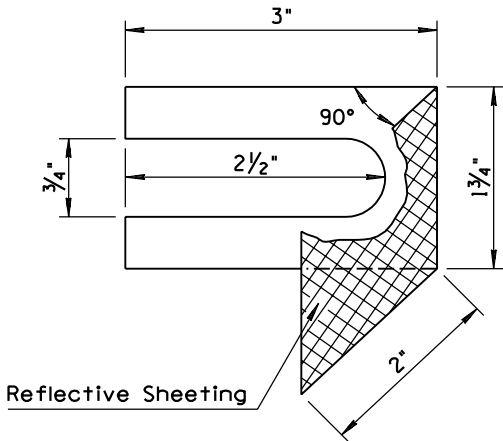
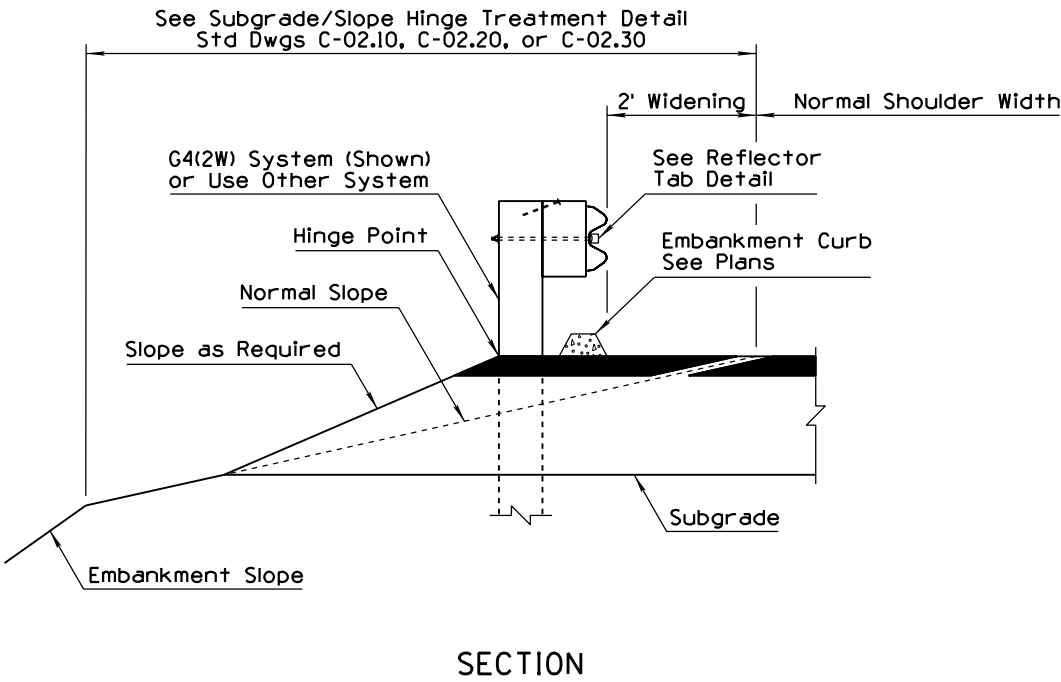
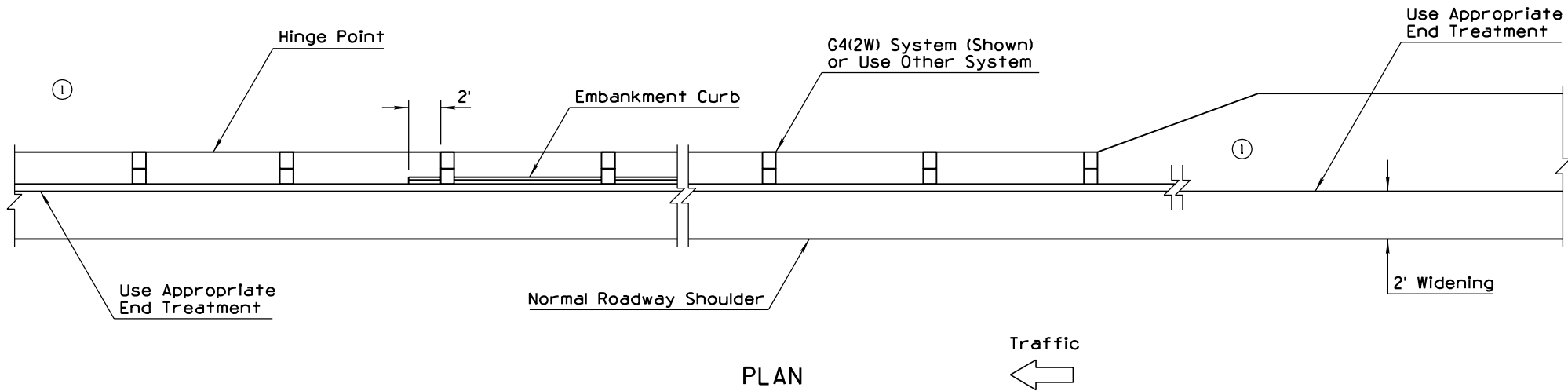
TYPE A GUARD RAIL INSTALLATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GUARDRAIL INSTALLATION TYPE A AND REFLECTOR TAB ③	DRAWING NO. C-10.01

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
①	REVISED PLAN VIEW GRAPHICS/REMOVED WIDTH DIMENSION	RLF	9/04
②	REVISED GENERAL NOTES 3 & 4	RLF	9/04
③	REVISED STANDARD DRAWING TITLE	RLF	9/04
④			

GENERAL NOTES

1. All embankment curb shall be protected by guardrail.
2. Guardrail shall extend beyond the limits of embankment curb.
- ② 3. See Std Dwg C-10.00 for measurement limits.
- ② 4. See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.

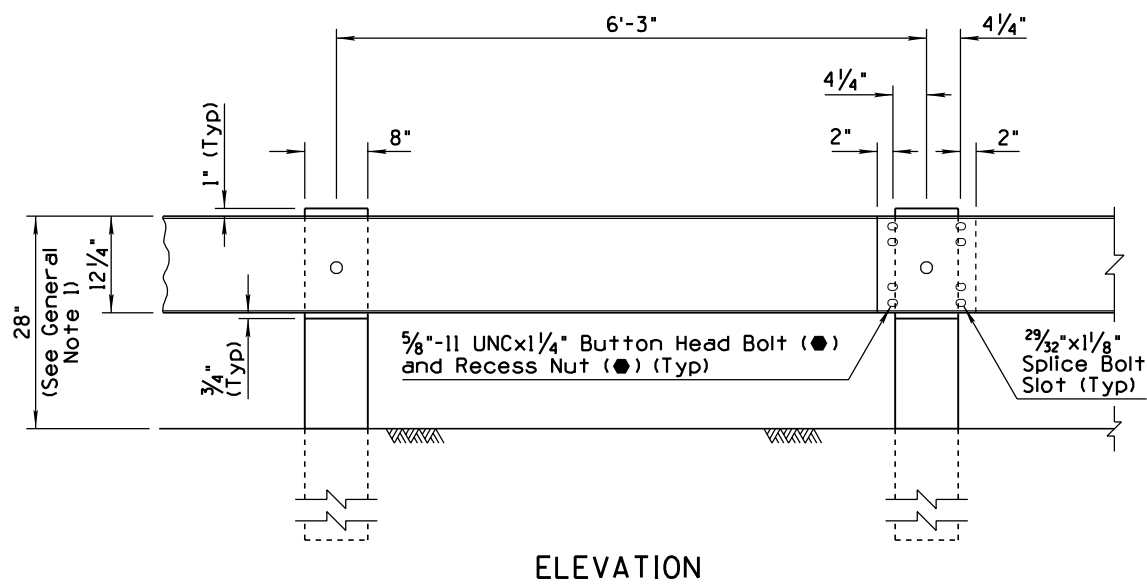
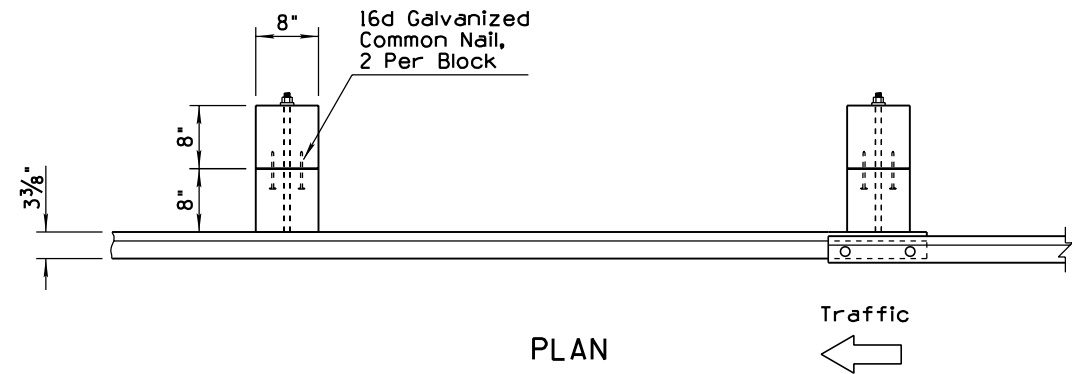


TYPE B GUARD RAIL INSTALLATION

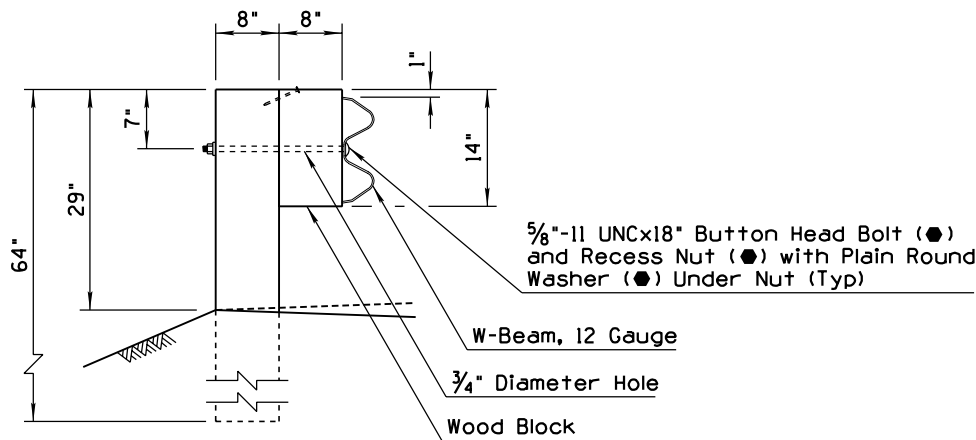
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GUARDRAIL INSTALLATION TYPE B AND REFLECTOR TAB ③	DRAWING NO. C-10.02

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DESIGNATION	RLF	9/04
2	REVISED GENERAL NOTE 1 & ADDED GENERAL NOTE 2	RLF	9/04
3	RENAMED STD DRAWING FROM C-10.20 AND REVISED TITLE	RLF	9/04
4			

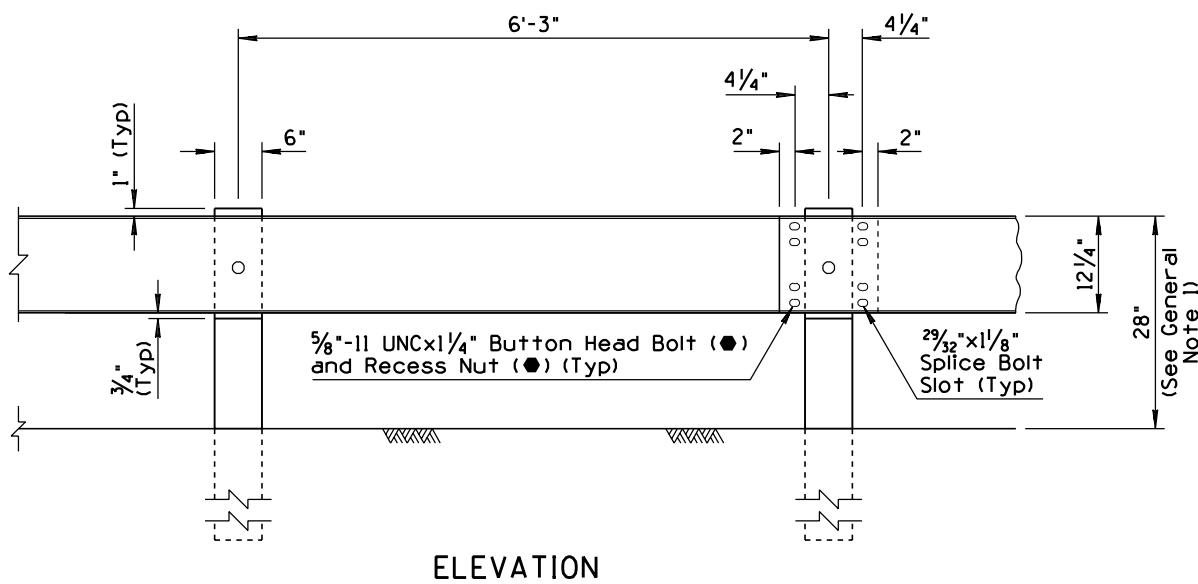
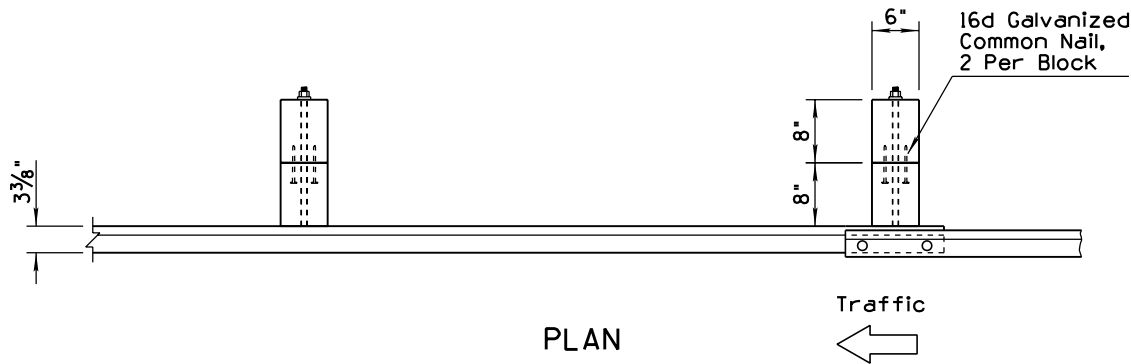
G4(1W) SYSTEM (8"x8")



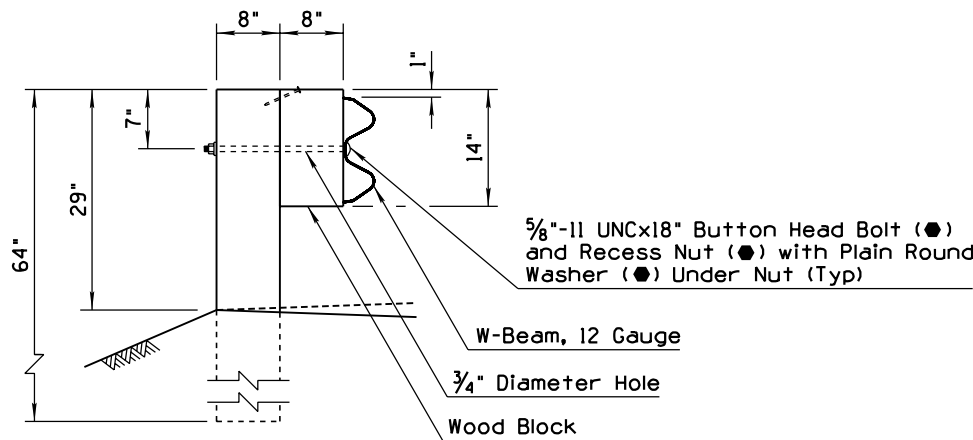
G4(1W) SYSTEM (8"x8")



G4(2W) SYSTEM (6"x8")



G4(2W) SYSTEM (6"x8")



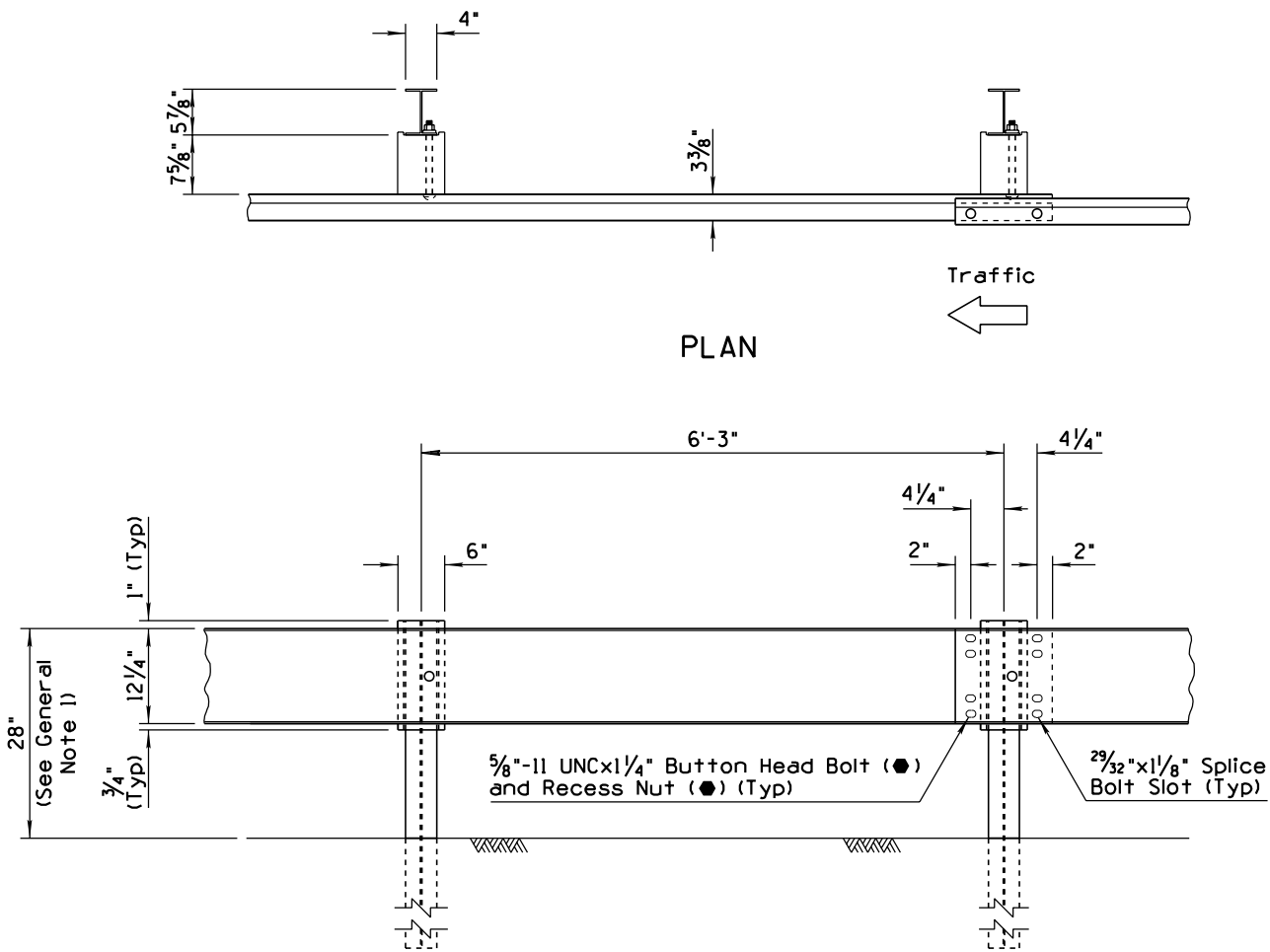
GENERAL NOTES

1. The control height for guardrail system is 28" to the top of rail, measured at the face of rail from the normal finished shoulder elevation.
2. Guardrail shall be lapped in the direction of adjacent traffic.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

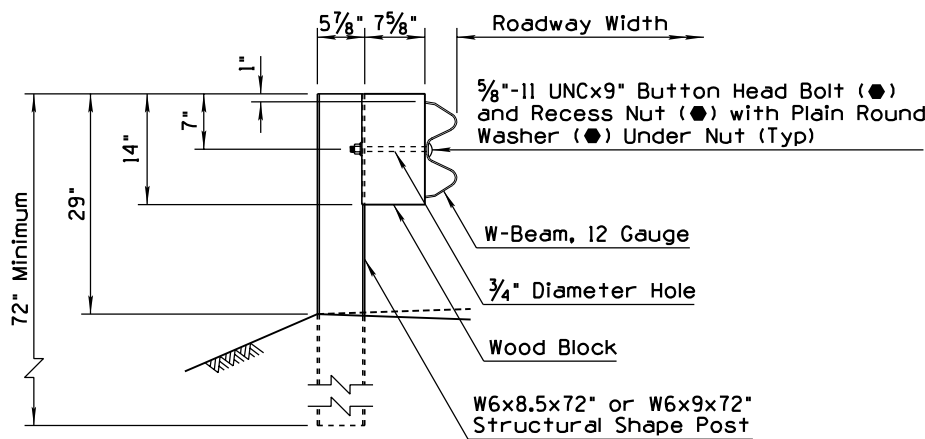
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL G4(1W) AND G4(2W) BLOCKED-OUT TIMBER POST	DRAWING NO. C-10.03

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DESIGNATION	RLF	9/04
2	REVISED GENERAL NOTES 1 & 2	RLF	9/04
3	RENAMED STD DRAWING FROM C-10.21 & REVISED TITLE	RLF	9/04
4			

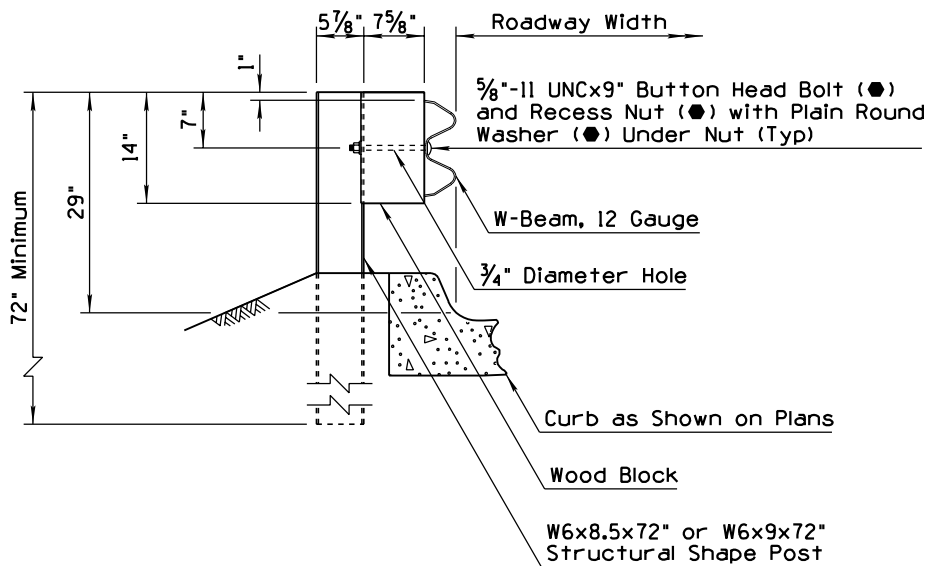
G4(IS) SYSTEM



ELEVATION
G4(IS) SYSTEM



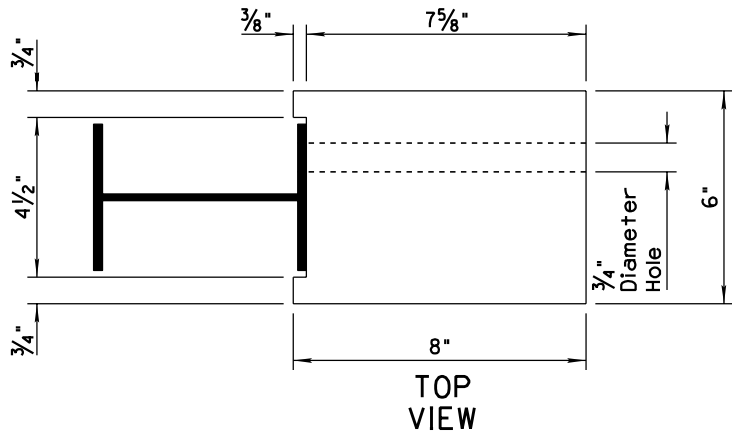
SECTION G4(IS)
SHOWN WITHOUT CURB



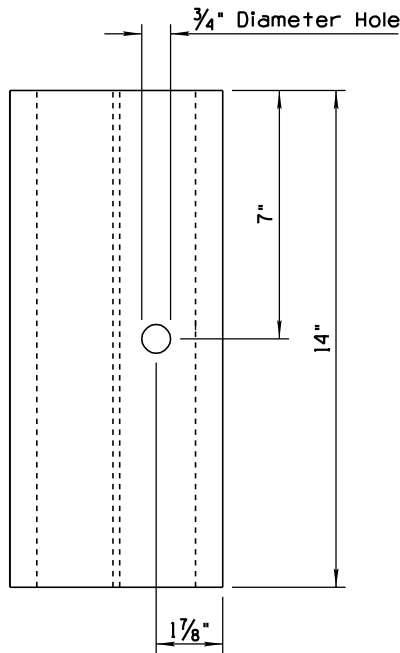
SECTION G4(IS)
SHOWN WITH CURB

GENERAL NOTES

1. The control height for guardrail system is 28" to the top of rail, measured at the face of rail from the normal finished shoulder elevation.
2. Guardrail shall be lapped in the direction of adjacent traffic.
1. ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



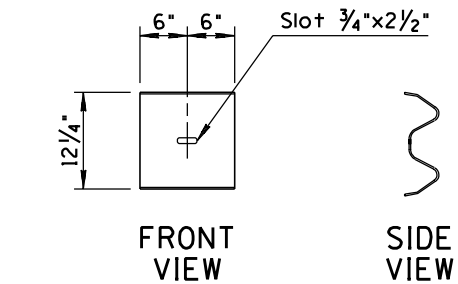
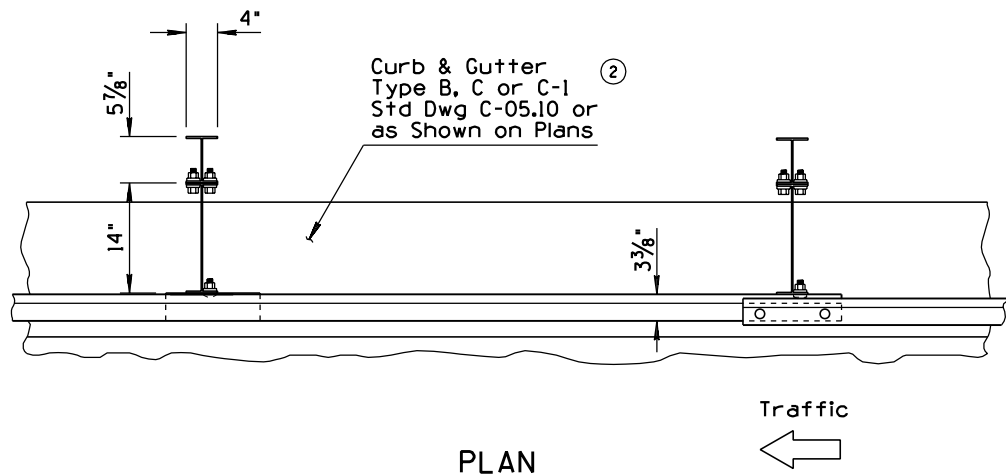
TOP
VIEW



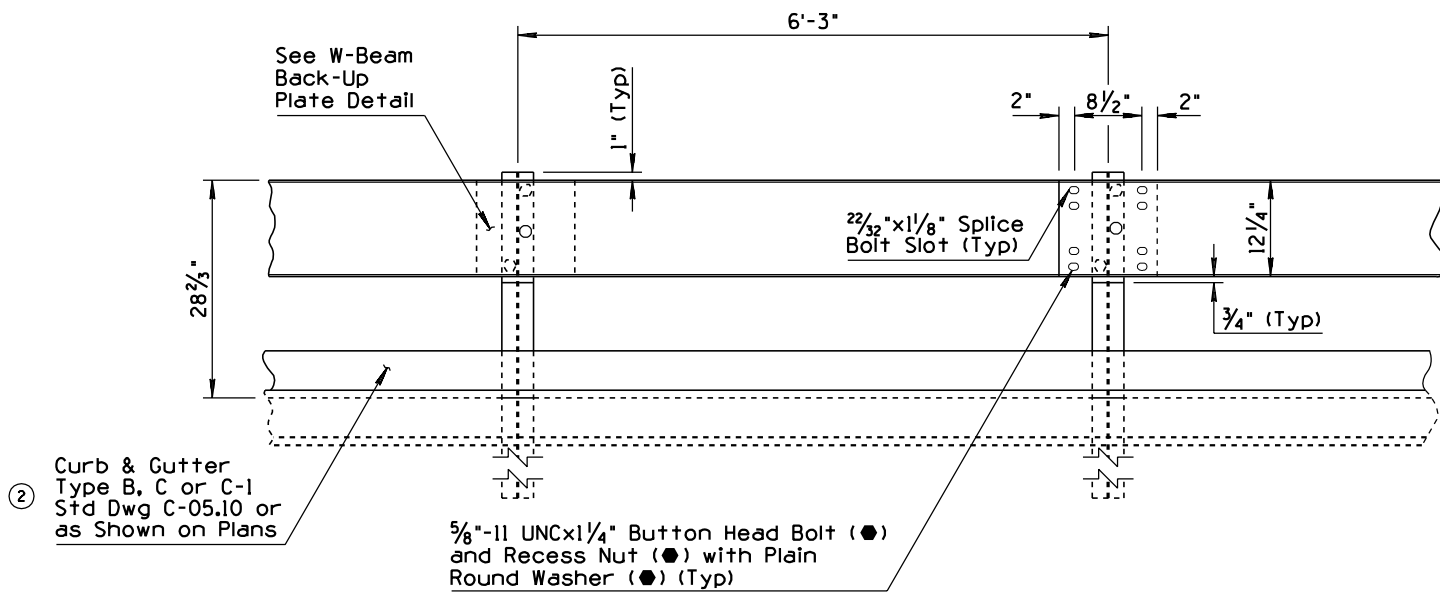
FRONT
VIEW
WOOD BLOCK DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL G4(IS) BLOCKED-OUT STEEL POST ③	DRAWING NO. C-10.04 ③

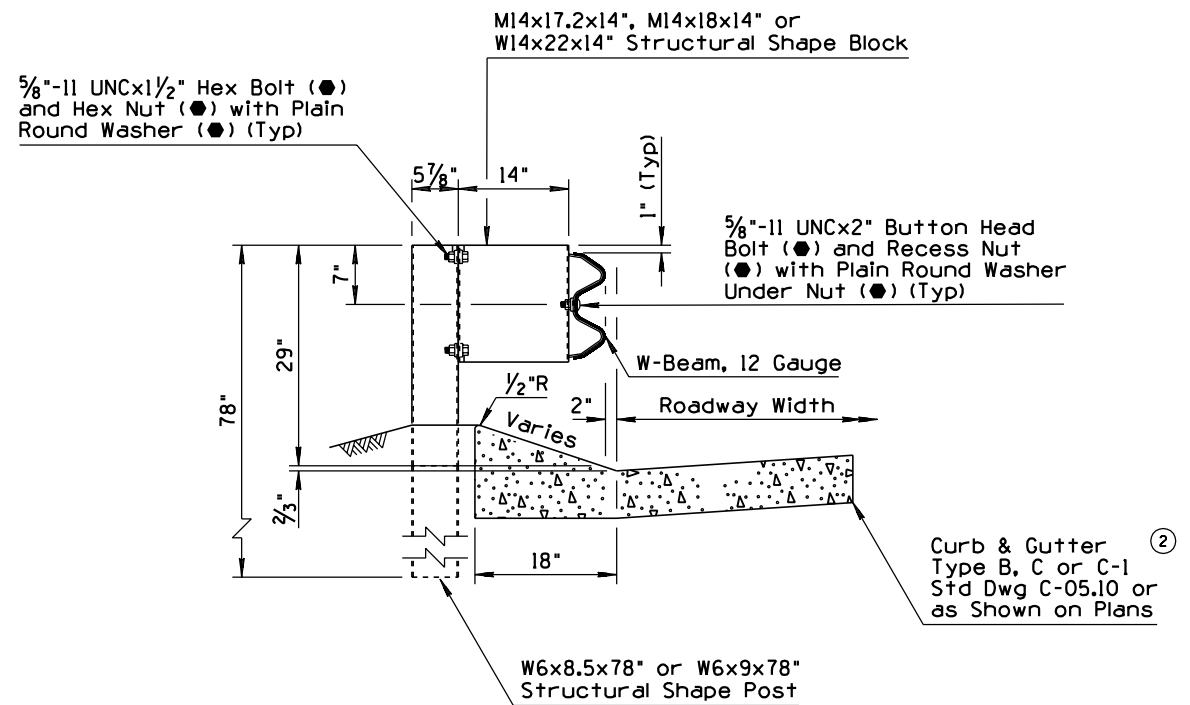
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
①	REVISED DESIGNATION	RLF	9/04
②	DELETED REFERENCE TO TYPE B-1 CURB & GUTTER	RLF	9/04
③	ADDED GENERAL NOTE 2	RLF	9/04
④	RENAMED STD DWG FROM C-10.22, SHEET 1 & MODIFIED TITLE	RLF	9/04



W-BEAM BACK-UP PLATE DETAIL



G4(1S-MODIFIED)

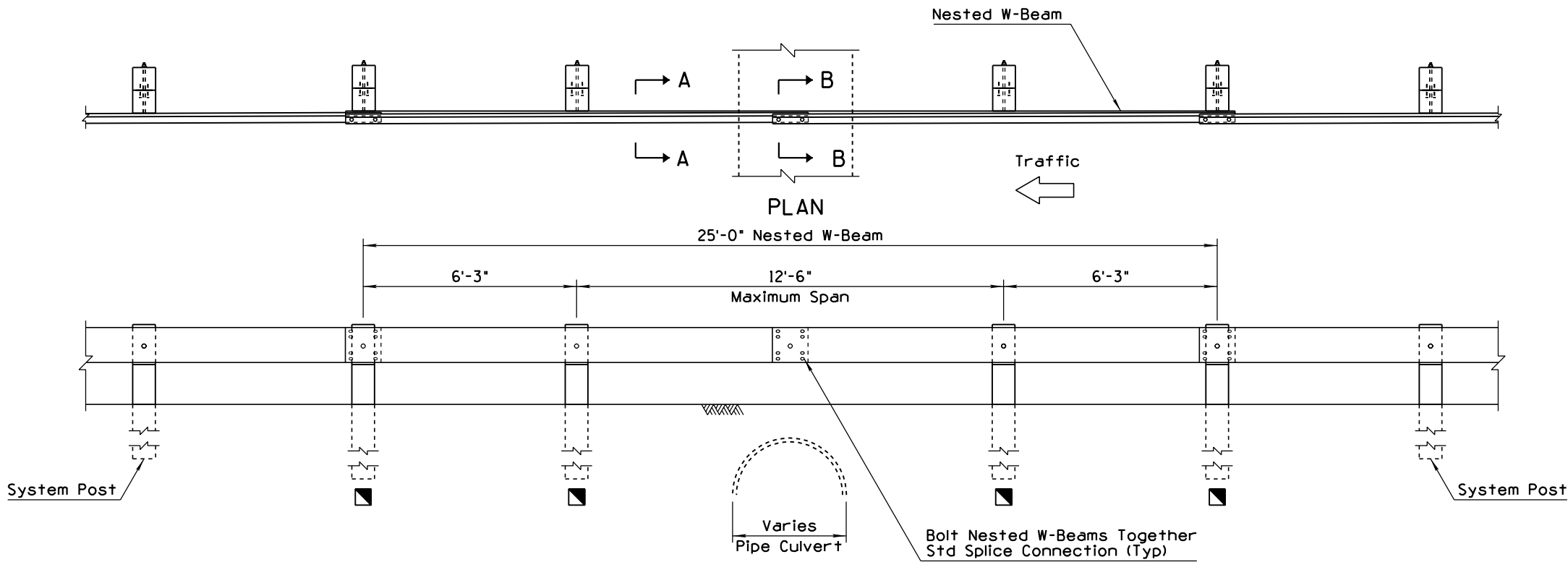


GENERAL NOTES

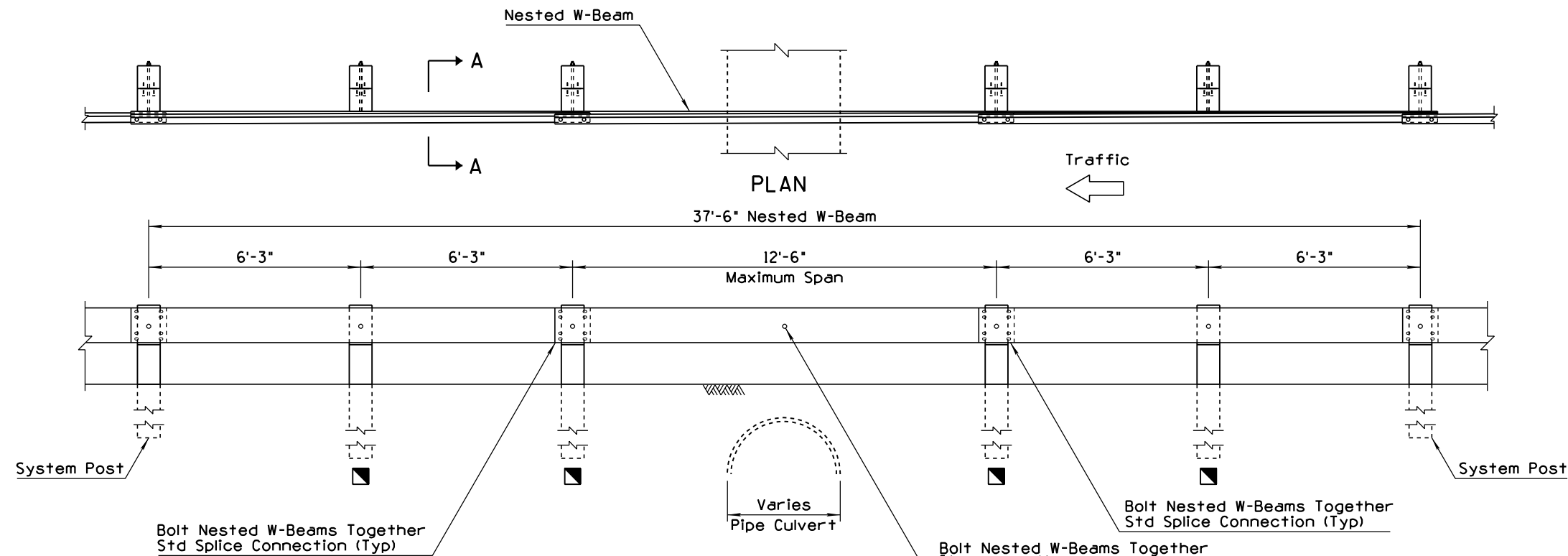
1. Height of curb shall not exceed 4 inches.
- ③ 2. Guardrail shall be lapped in the direction of adjacent traffic.
- ① ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL G4(MODIFIED) WITH FREEWAY CURB AND GUTTER	DRAWING NO. C-10.05 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.28, 1 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED GENERAL NOTES 2 & 3	RLF	9/04
4	REVISED SECTION VIEW	RLF	9/04



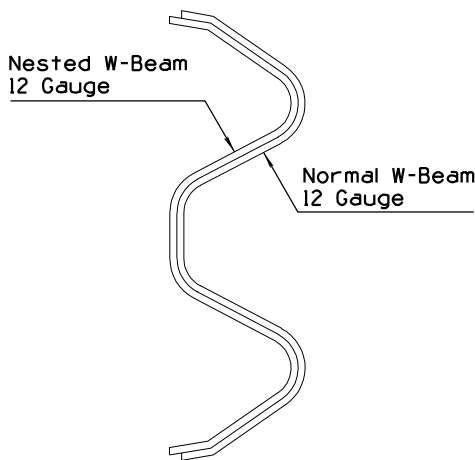
ELEVATION
NESTED STEEL W-BEAM - TYPE 1 - SHORT SPAN
(SPICE CONNECTION INSIDE SPAN) LENGTH = 25'-0"



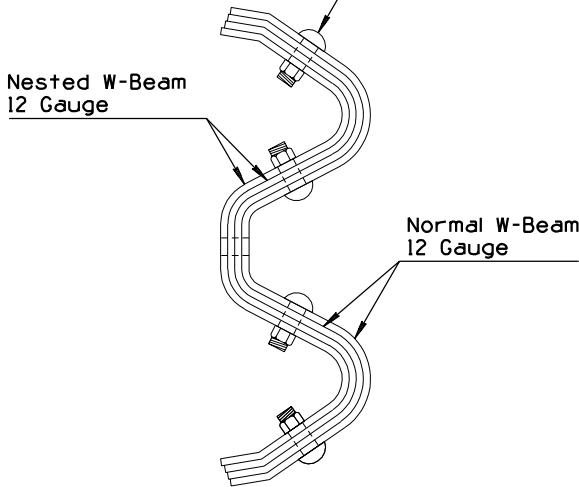
ELEVATION
NESTED STEEL W-BEAM - TYPE 2 - SHORT SPAN
(SPICE CONNECTION OUTSIDE SPAN) LENGTH = 37'-6"

GENERAL NOTES

1. See Std Dwgs C-10.03 and C-10.04 for additional information and dimensions.
 2. Install Type 1 when splice connection location falls on object. Install Type 2 when non-splice post falls on object.
 3. Guardrail shall be lapped in the direction of adjacent traffic.
 4. For Type 1 and Type 2, a maximum of one post may be eliminated within a span of nested guardrail.
- ② ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation
- 72" Timber Post



Bolt Nested Steel W-Beams Together with $\frac{5}{8}$ "-11 UNCx1 $\frac{1}{4}$ " Button Head Bolt (●) and Recess Nut (●) (Typ) 8 Required



APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL NESTED TYPES 1 AND 2 ①	DRAWING NO. C-10.06 ① Sheet 1 of 2

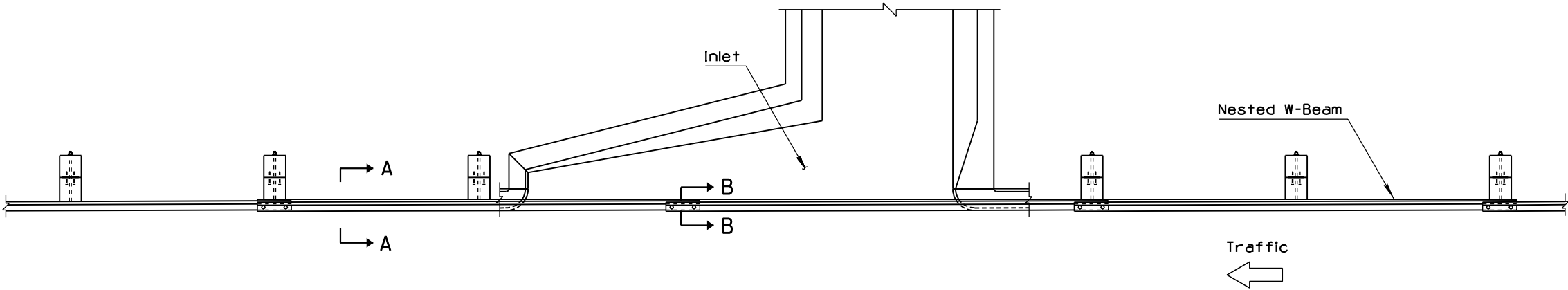
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.28, 2 OF 2 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 3	RLF	9/04
3	ADDED DESIGNATION	RLF	9/04
4			

GENERAL NOTES

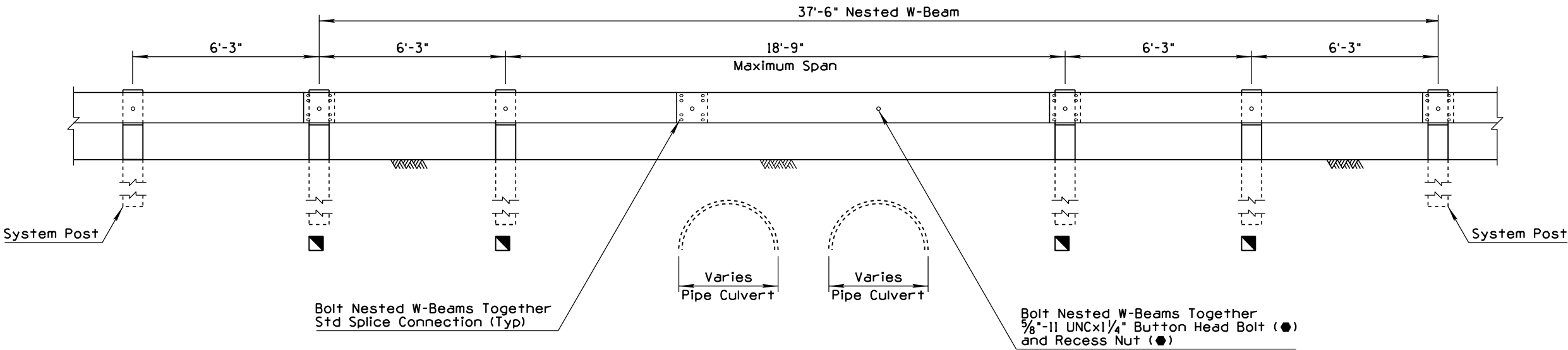
1. Use Type 3 Nested W-Beam to span downdrain or spillway inlets as shown in the plan view.
2. Use Type 3 Nested W-Beam to span multiple obstructions as shown in the elevation view.
- ② 3. Guardrail shall be lapped in the direction of adjacent traffic.
4. For Type 3, a maximum of two posts may be eliminated within a span of nested guardrail.

● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

■ 72" Timber Post



PLAN



ELEVATION

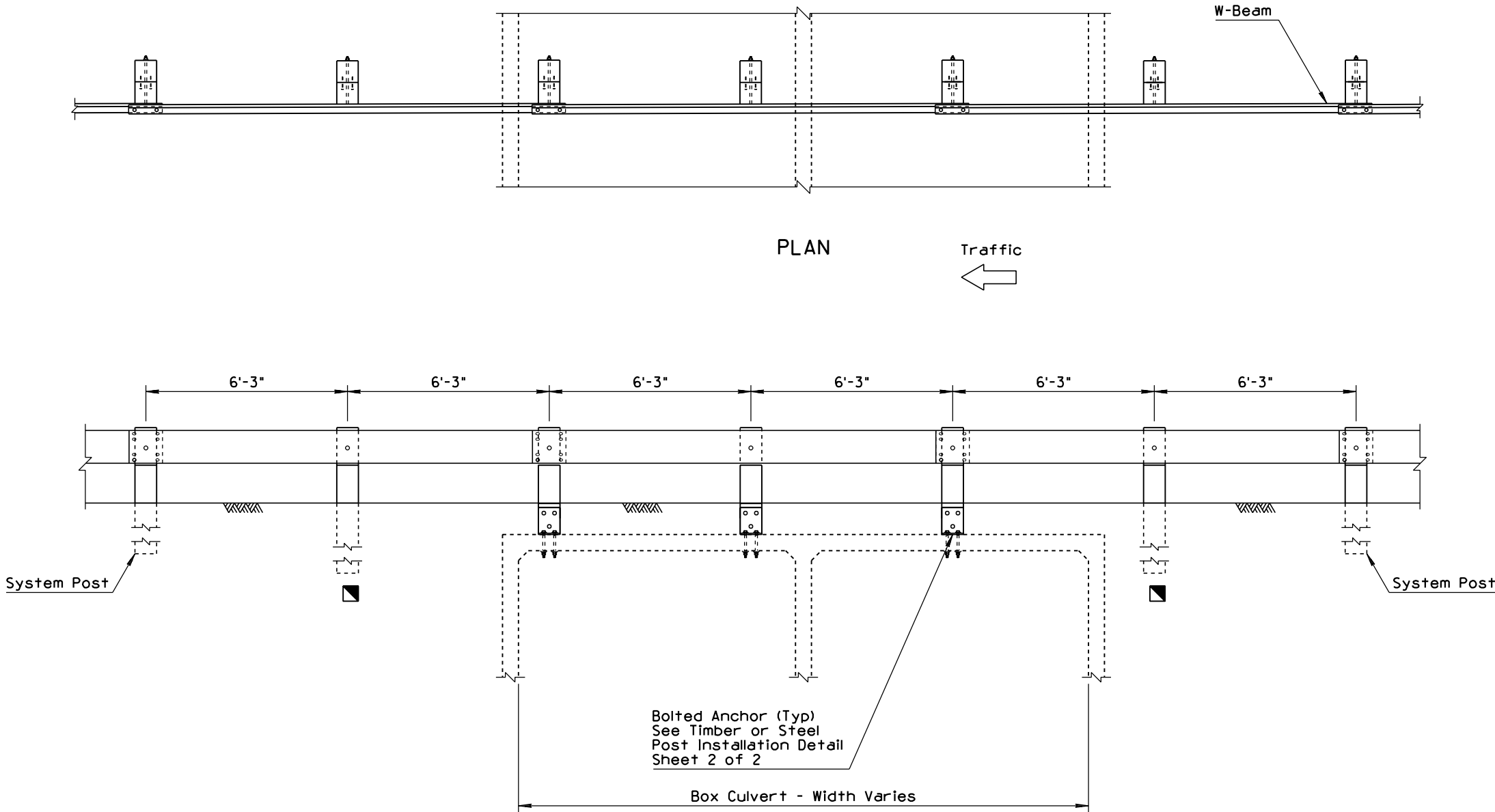
NESTED STEEL W-BEAM - TYPE 3 - LONG SPAN
LENGTH = 37'-6"

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL NESTED TYPE 3	DRAWING NO. C-10.06 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-10.29, 1 OF 2 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 2	RLF	9/04
3	REVISED GENERAL NOTE 1	RLF	9/04
4			

GENERAL NOTES

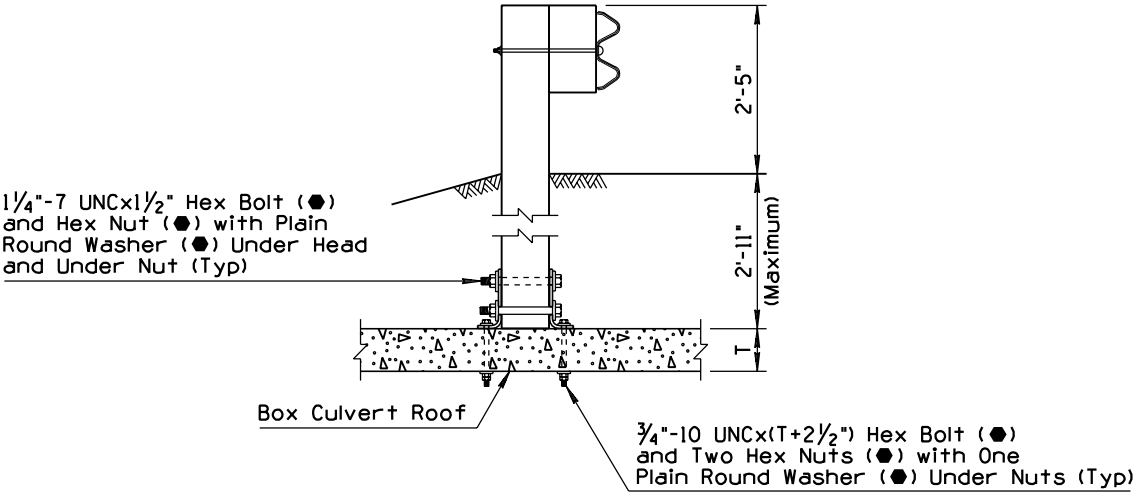
- 3
1. See Std Dwgs C-10.03 and C-10.04 for additional information and dimensions.
- 2
2. Guardrail shall be lapped in the direction of adjacent traffic.
- 72" Timber Post



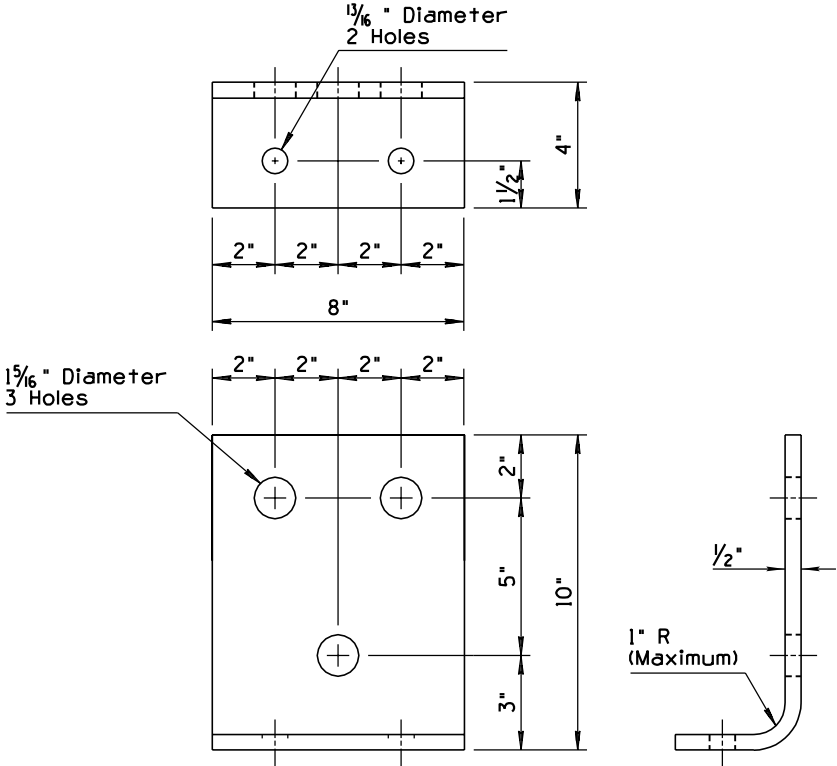
ELEVATION
BOLTED ANCHOR
BOX CULVERT INSTALLATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL BOLTED ANCHOR 1	DRAWING NO. C-10.07 1 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.29, 2 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3			
4			

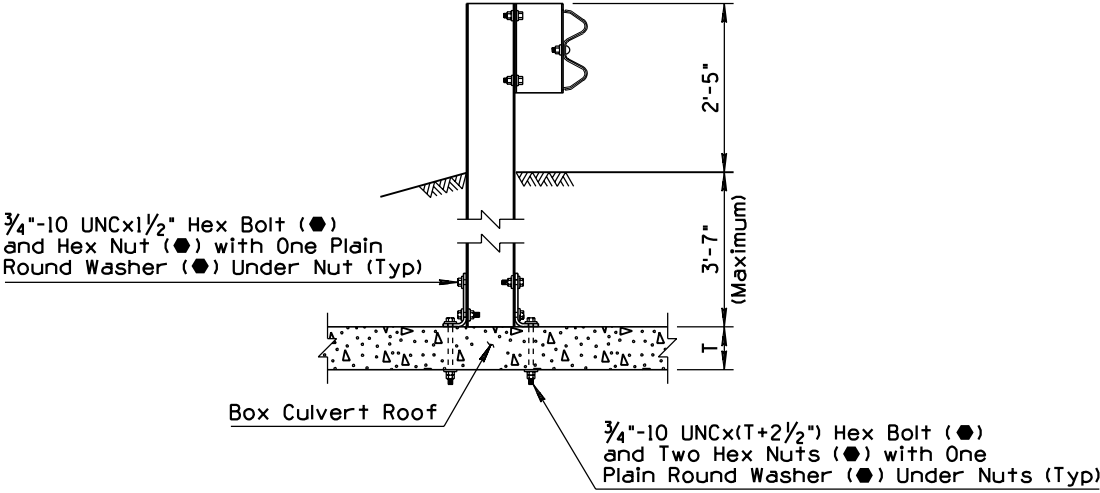


INSTALLATION DETAIL

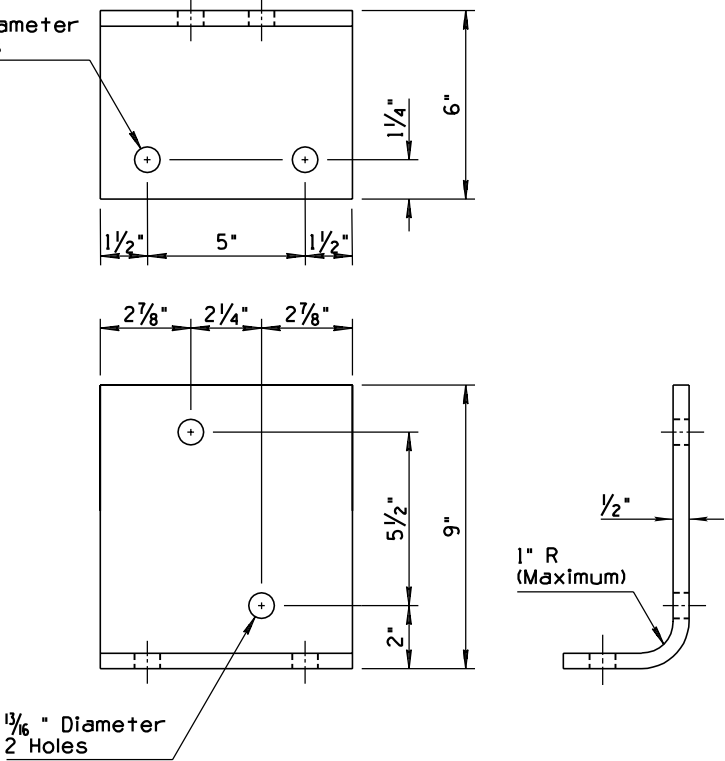


BRACKET DETAIL

- GENERAL NOTES
- Bracket may be made of one piece hot bent, or two pieces welded together.
 - Short timber posts anchored to box culvert roof shall be 8" x 8" only.
- ② ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



INSTALLATION DETAIL

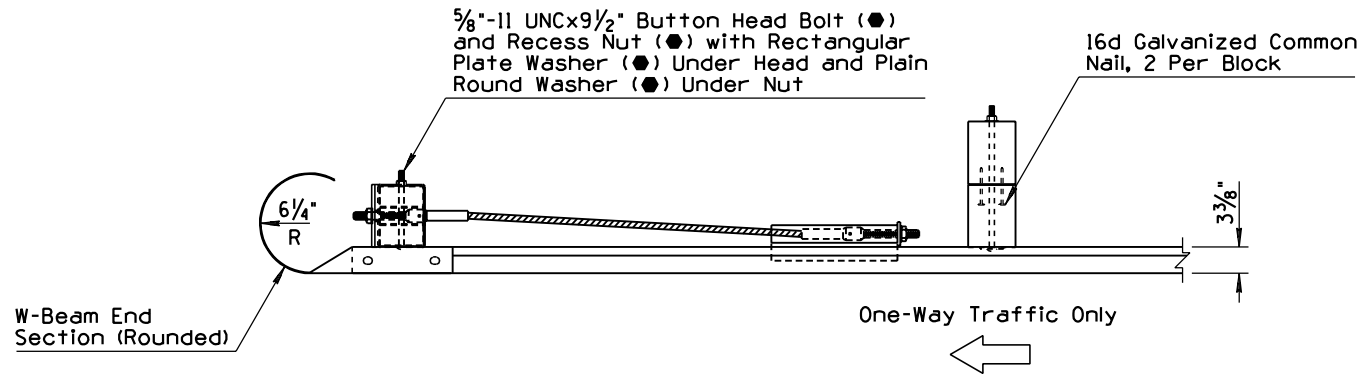


BRACKET DETAIL

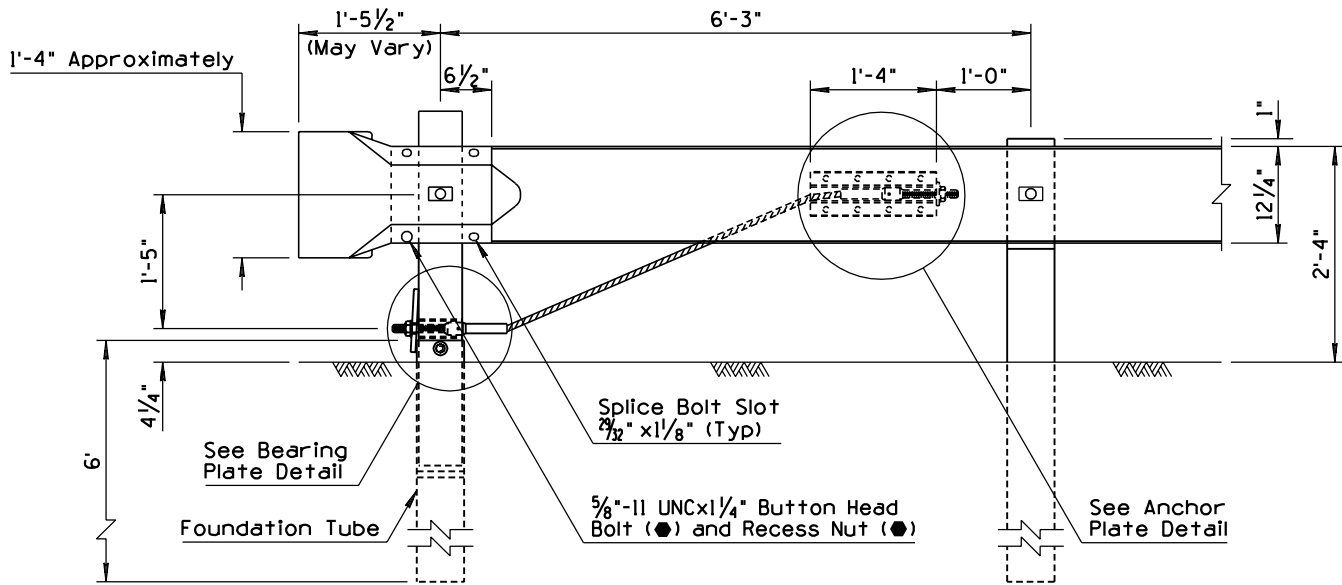
BOLTED ANCHOR
STEEL POST INSTALLATION DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL BOLTED ANCHOR ①	DRAWING NO. ① C-10.07 Sheet 2 of 2

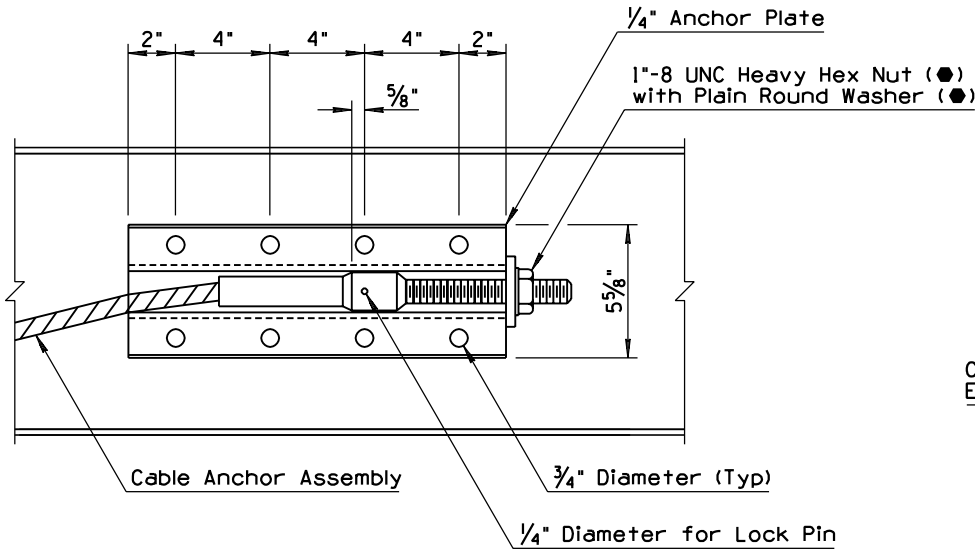
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.45 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED GENERAL NOTE 2	RLF	9/04
4			



PLAN

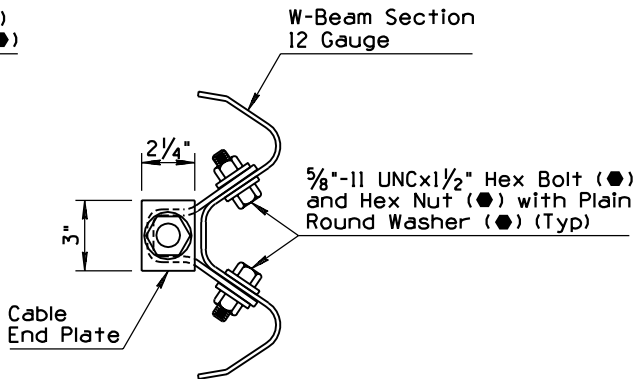


ELEVATION

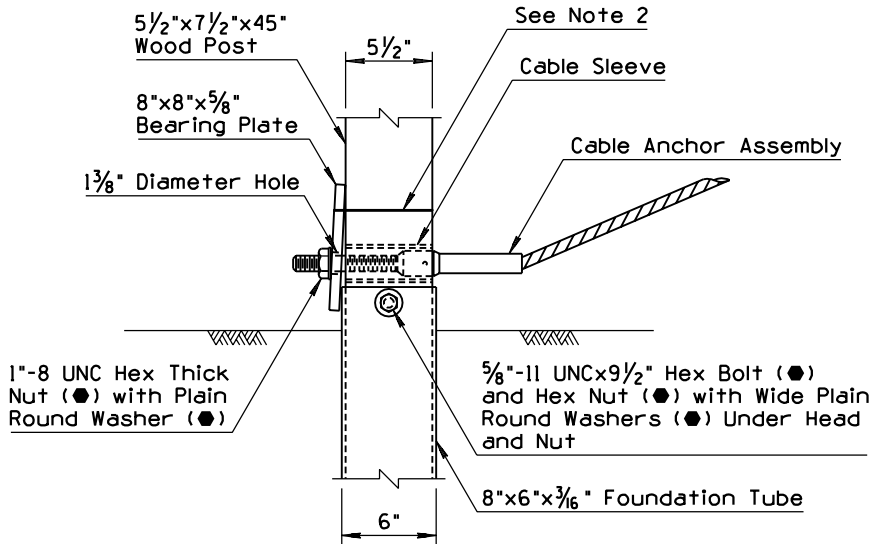


FRONT VIEW

ANCHOR PLATE DETAIL

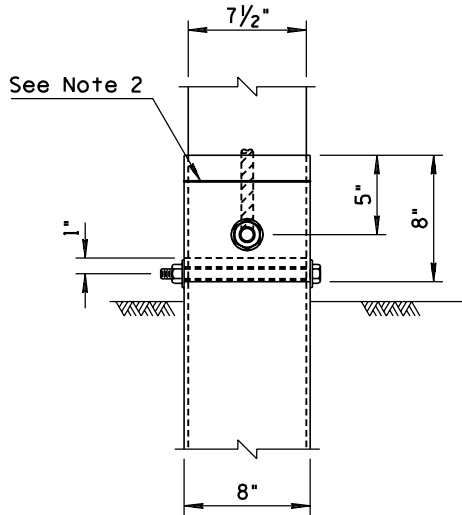


SIDE VIEW



FRONT VIEW

BEARING PLATE DETAIL



SIDE VIEW

GENERAL NOTES

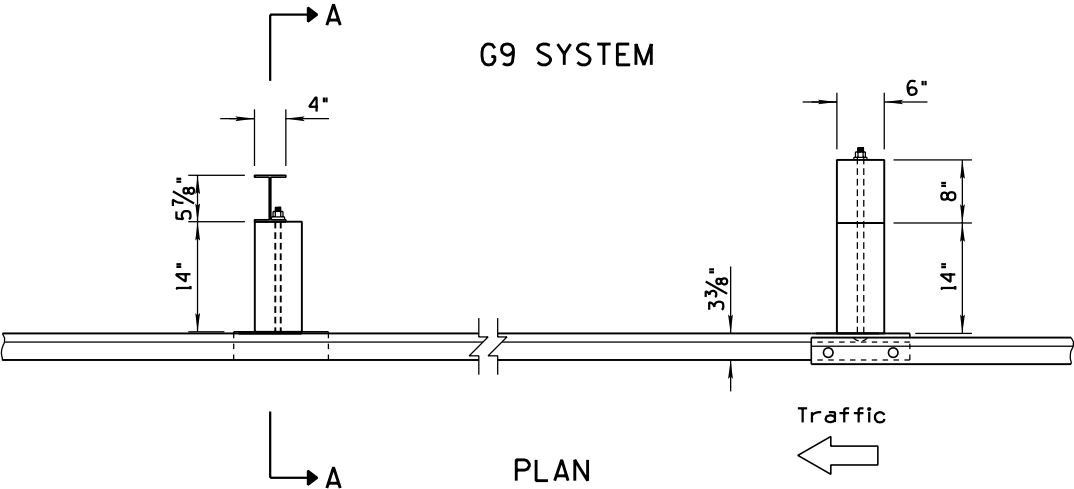
- The cable assembly shall be tightened to remove slack.
 - One wrap of 14 gauge galvanized steel wire shall be wrapped around the terminal post near the top of the bearing plate.
 - See Std Dwg C-10.00 for measurement limits.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL END ANCHOR ①	DRAWING NO. C-10.08 ①

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.24 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED PLAN, ELEVATION & SECTION VIEWS	RLF	9/04
4			

GENERAL NOTES

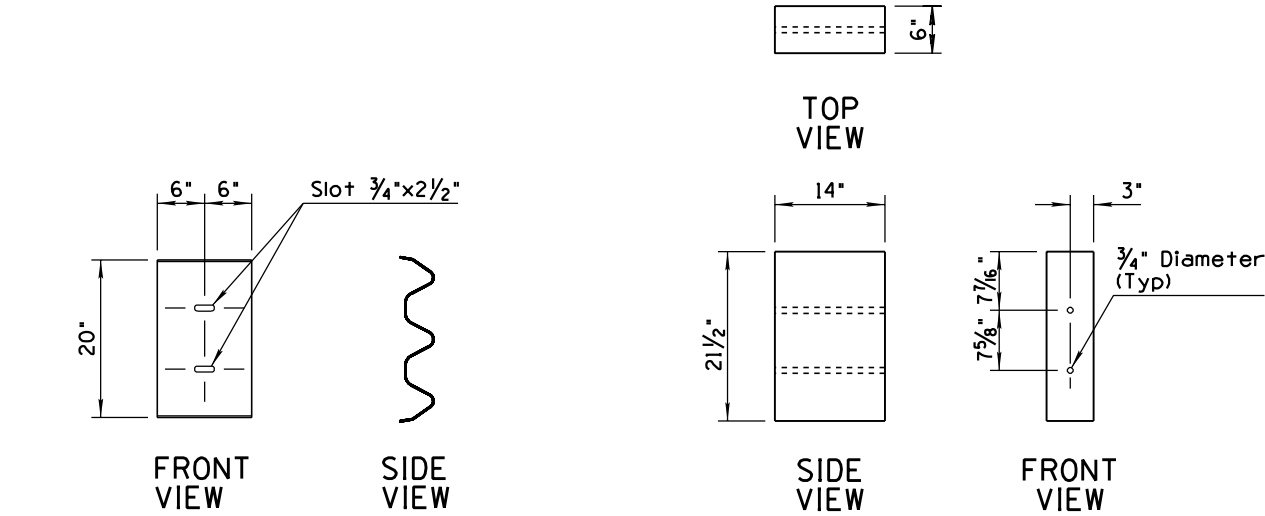
② ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



G9 SYSTEM

PLAN

③

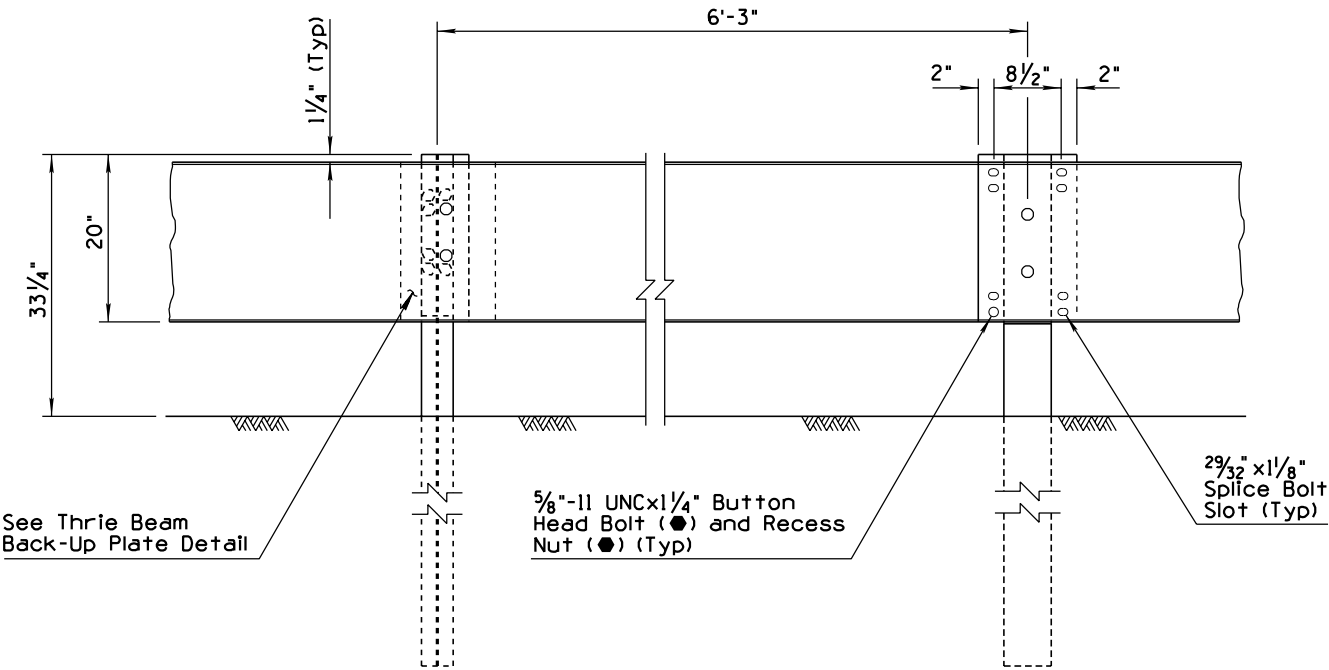


THRIE BEAM BACK-UP PLATE DETAIL

③

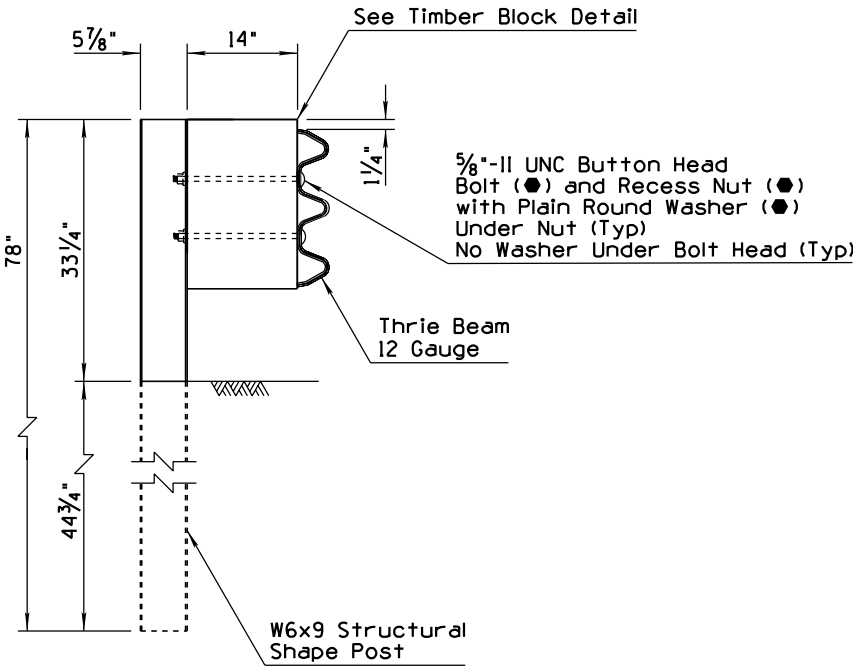
TIMBER BLOCK DETAIL

③



ELEVATION
G9 SYSTEM

③

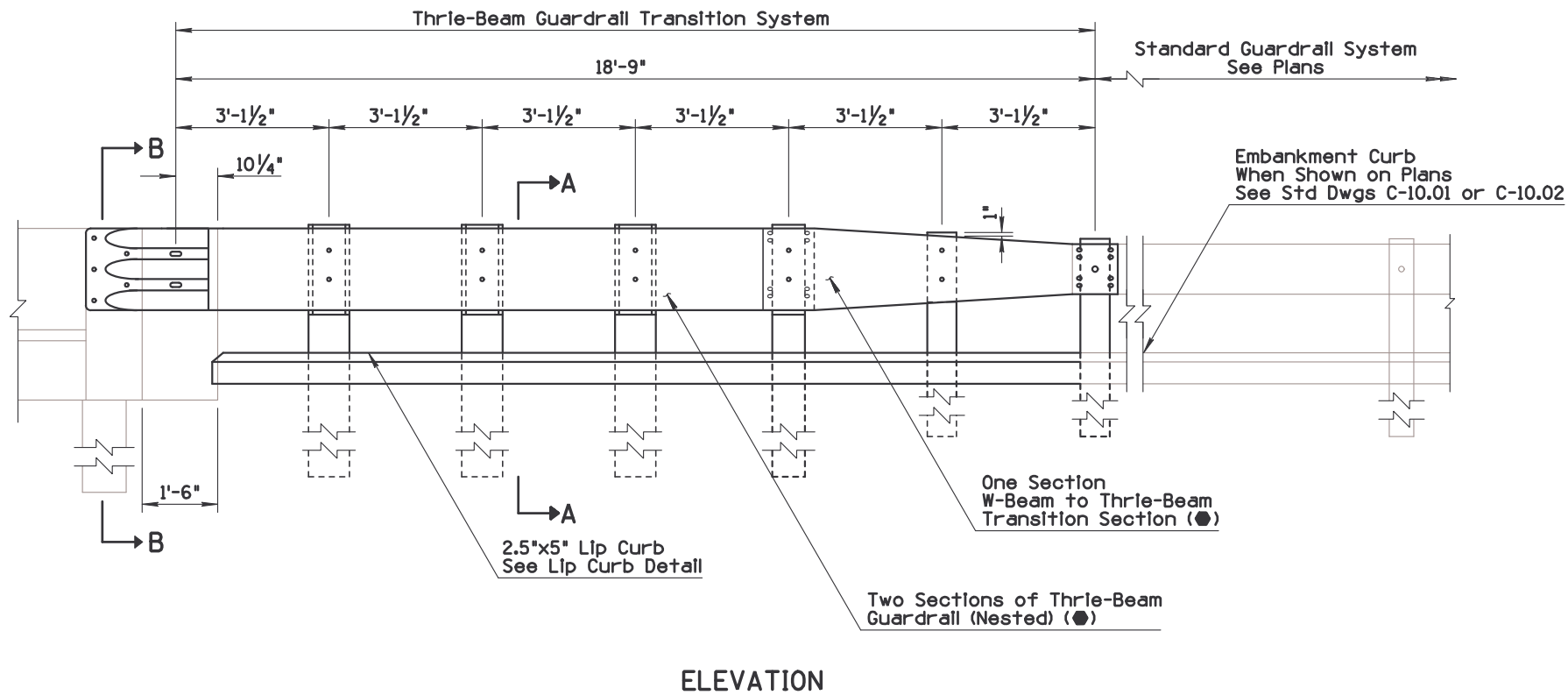
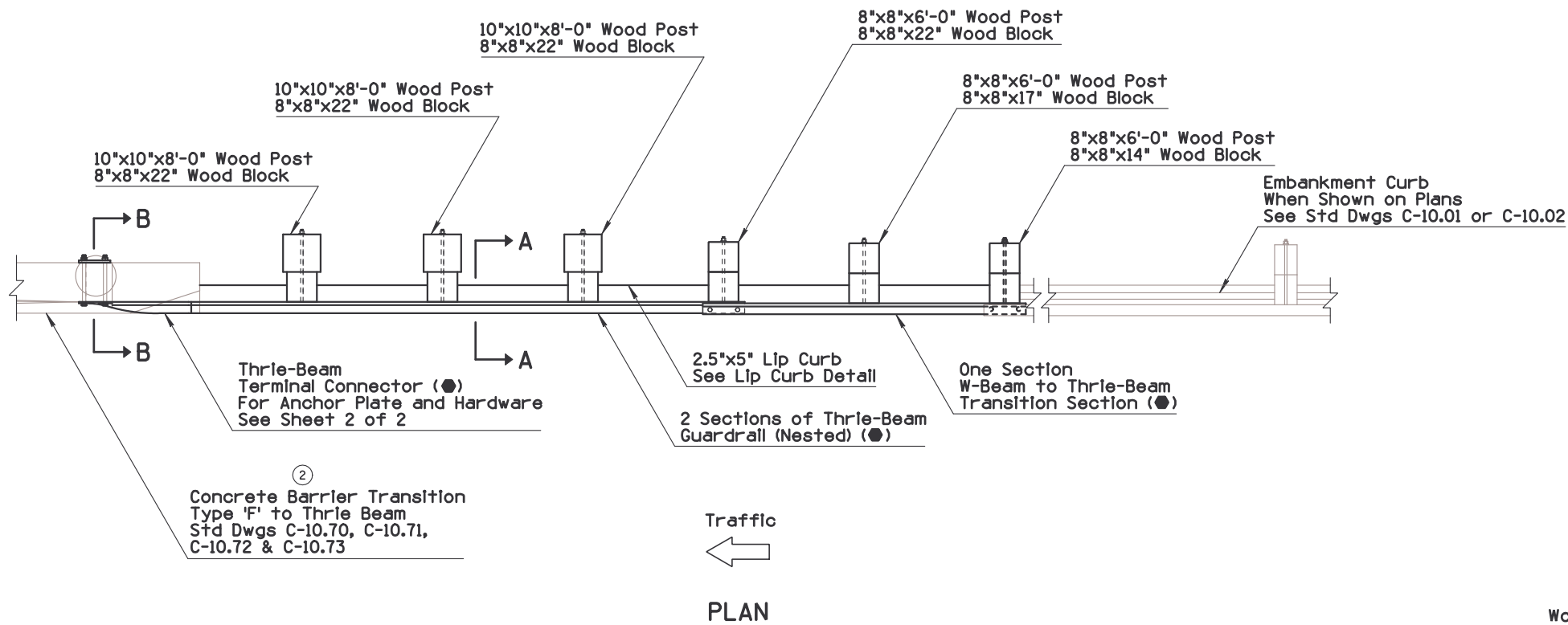


(G9) SECTION A-A

③

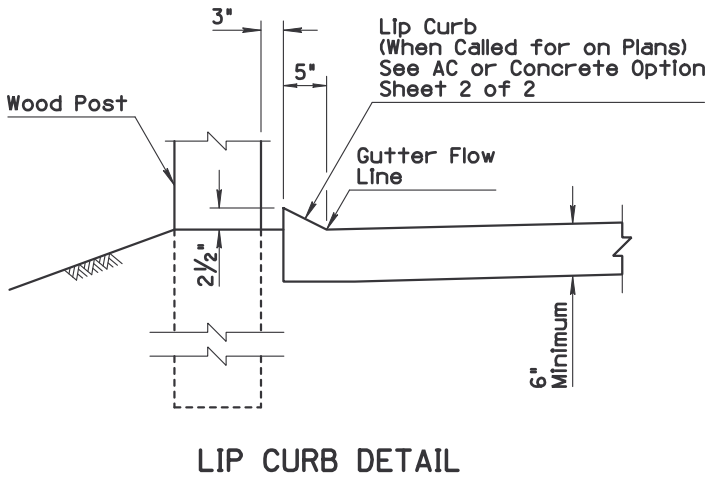
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	THRIE-BEAM GUARDRAIL G9 BLOCKED-OUT STEEL POST	DRAWING NO. ① C-10.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REMOVED (A325) REQUIREMENT	RLF	12/04
2	REVISED BARRIER TRANSITION CALLOUT	RLF	4/05
3	REISSUED AS STANDARD DRAWING C-10.30, SHEET 1 OF 2	RLF	4/05
4			



GENERAL NOTES

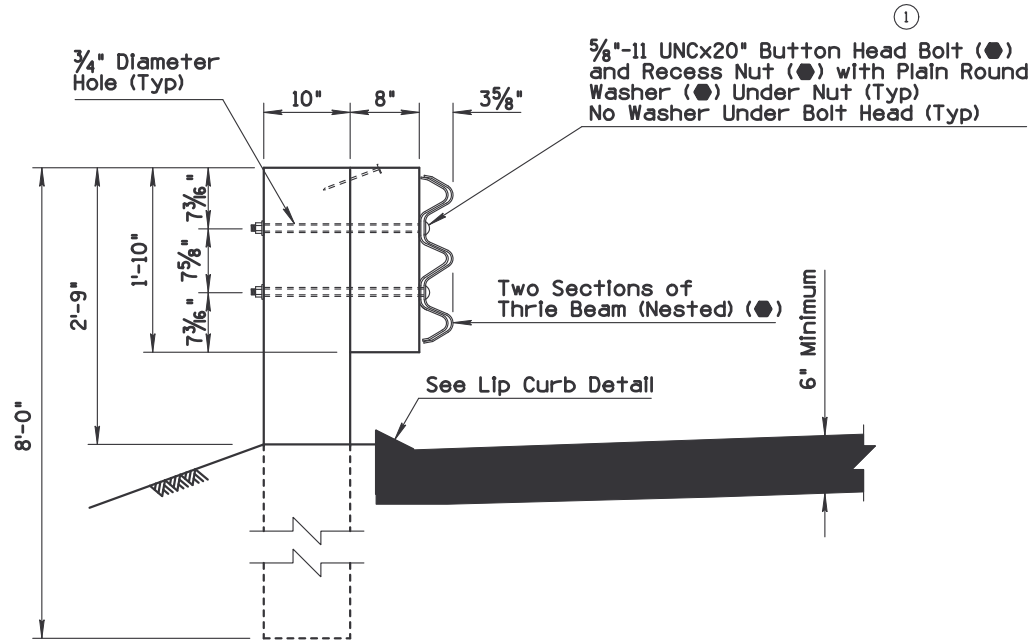
1. Curbing is not required when drainage flows transversely away from barrier.
2. Treatment at back of lip curb modified for constructability purposes. Front slope and height of lip curb shall not be exceeded.
3. Thrie-beam terminal connector to thrie-beam splice shall be lapped in the direction of adjacent traffic.
 - - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



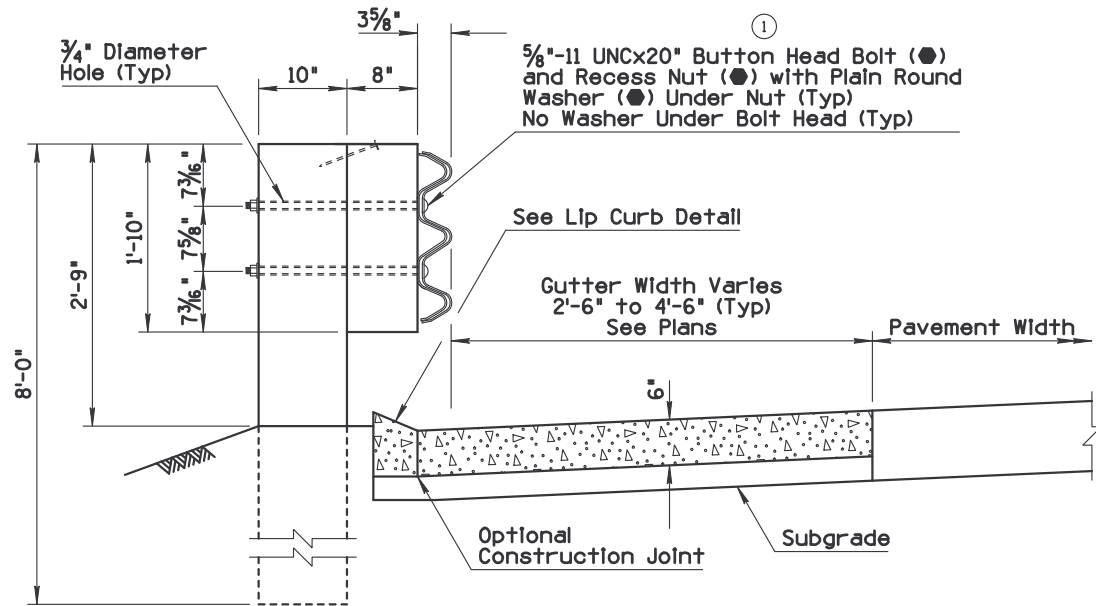
LIP CURB DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/05
APPROVED FOR DISTRIBUTION <i>[Signature]</i>	GUARDRAIL TRANSITION, THRIE BEAM TO CONCRETE HALF BARRIER 32" TYPE 'F'	DRAWING NO. 3 C-10.30 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING	RLF	4/05
2			
3			
4			

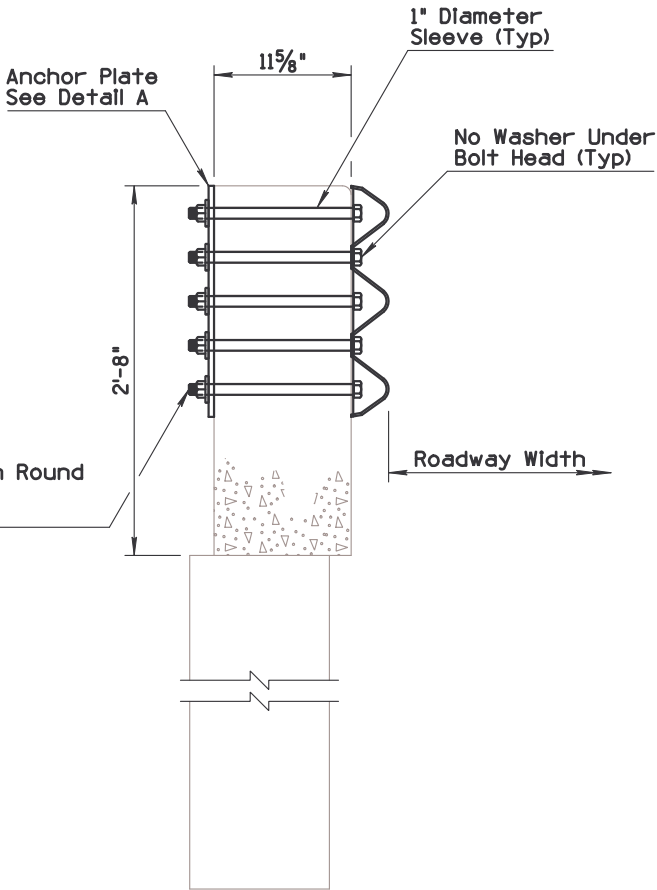


SECTION A-A
AC OPTION

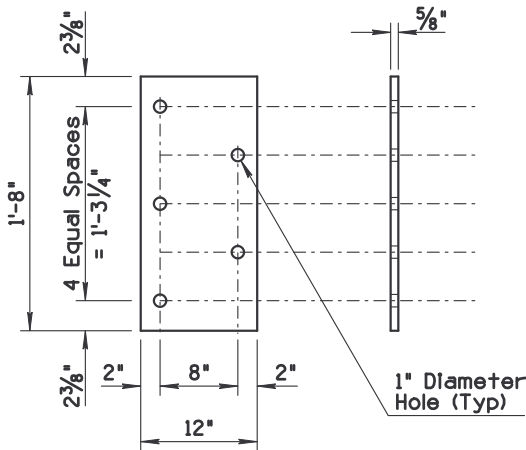


SECTION A-A
CONCRETE OPTION

7/8"-9 UNCx14" Hex Bolt (A325) (●) and Hex Nut (A325) (●) with Plain Round Washer (●) (Under Nut) (Typ)
5 Required



SECTION B-B



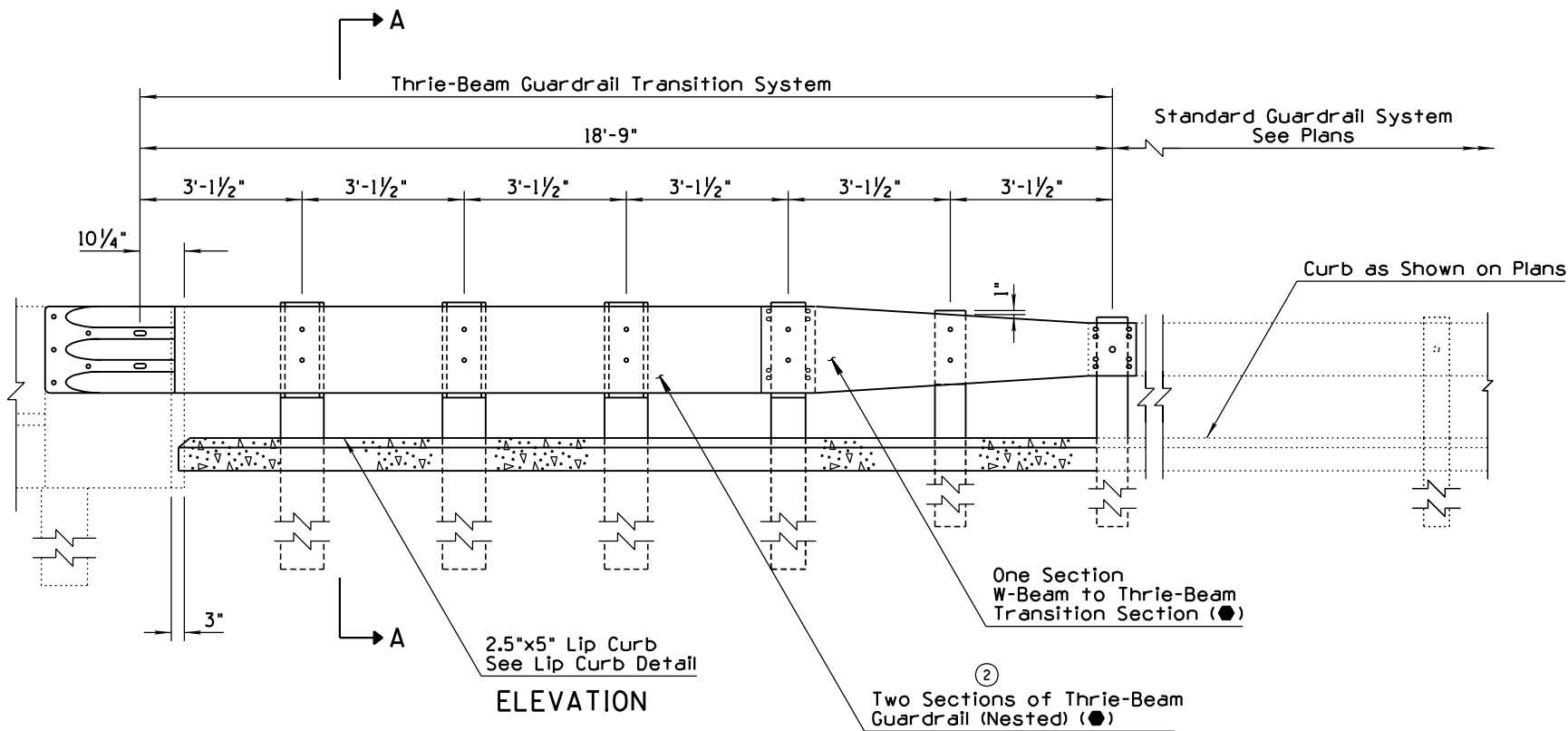
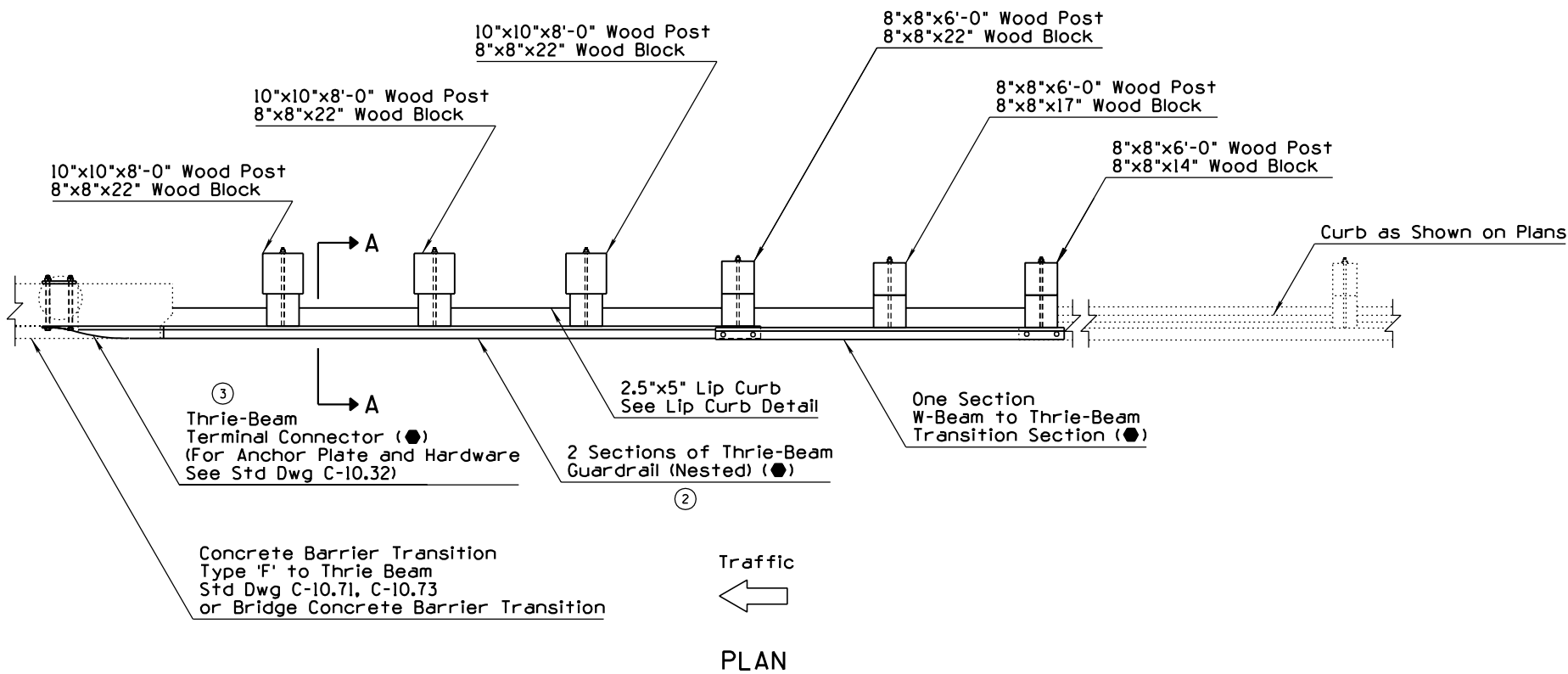
ANCHOR PLATE - DETAIL A

GENERAL NOTES

- Anchor Plate shall conform to ASTM specification A36. Bolts, washers and Anchor Plate shall be galvanized or, at the contractors option, stainless steel bolts and washers may be used.
 - Two-Inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

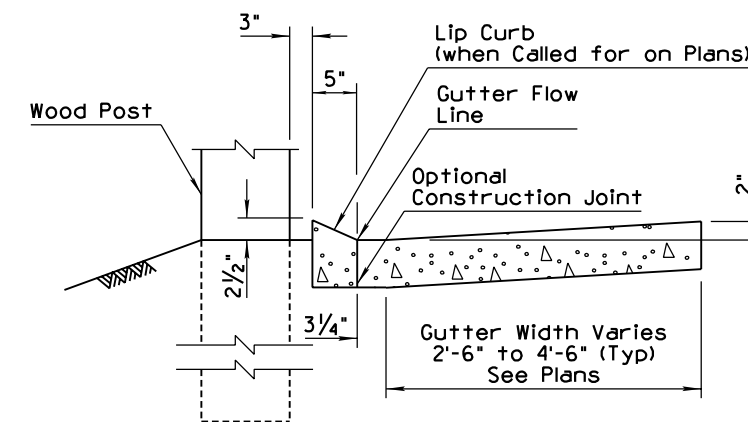
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	GUARDRAIL TRANSITION W-BEAM TO CONCRETE HALF BARRIER 32" TYPE 'F'	DRAWING NO. 1 C-10.30 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED POST SIZES AND SPACING	RLF	9/04
2	ADDED NESTED THRIE BEAM REQUIREMENT	RLF	9/04
3	ADDED ANCHOR PLATE REFERENCE	RLF	9/04
4	ADDED (A325) REQUIREMENT	RLF	9/04

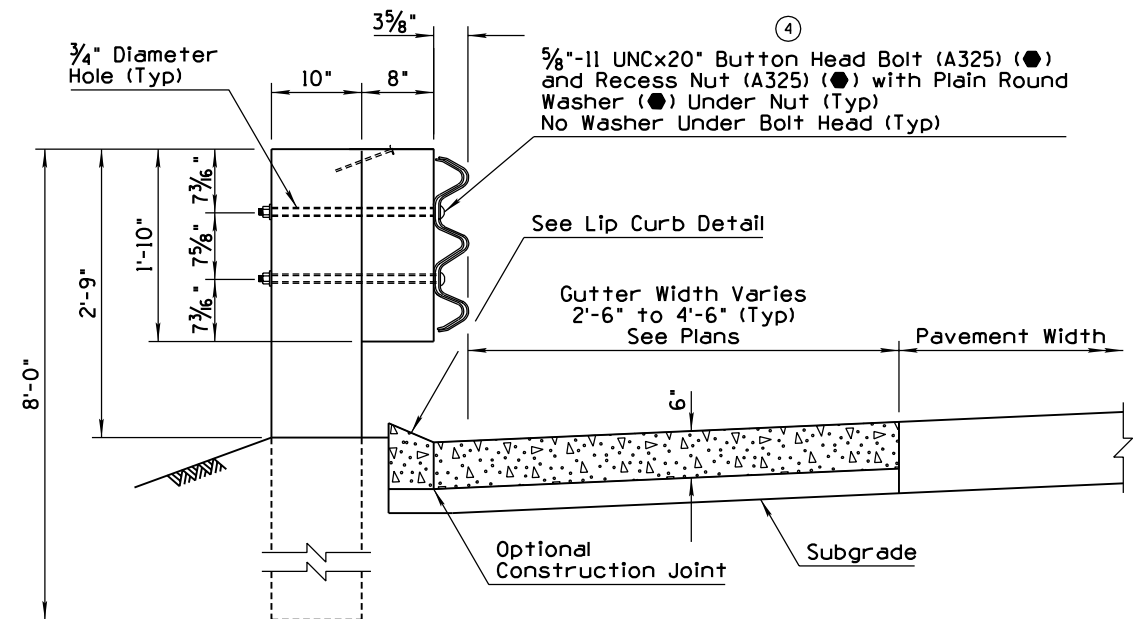


GENERAL NOTES

- Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- Curbing is not required when drainage flows transversely away from barrier.
- Thrie-beam terminal connector to thrie-beam splice shall be lapped in the direction of adjacent traffic.
 - - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



LIP CURB DETAIL



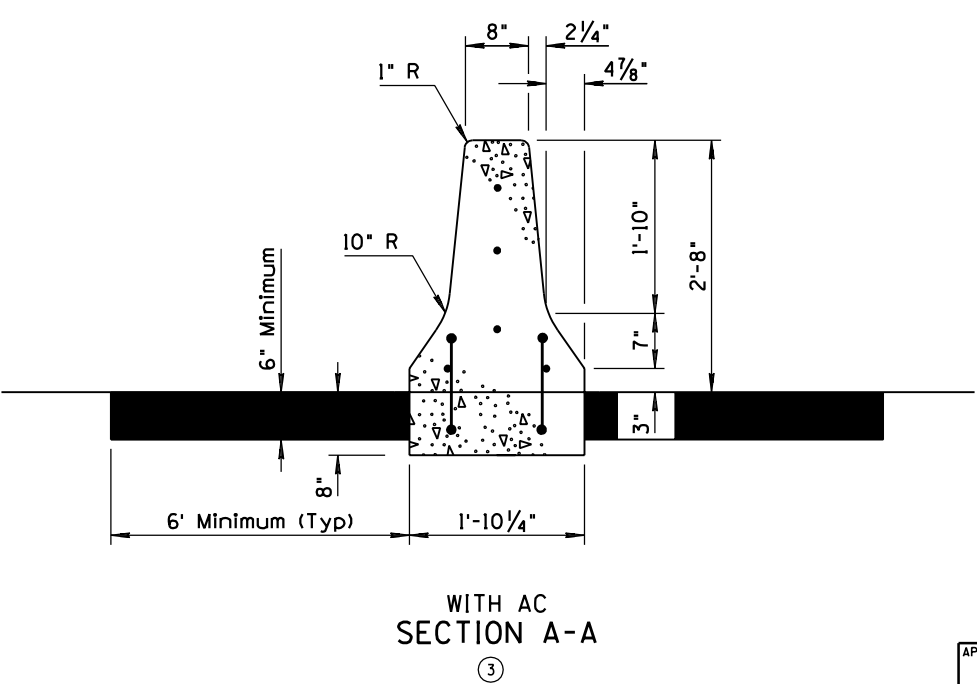
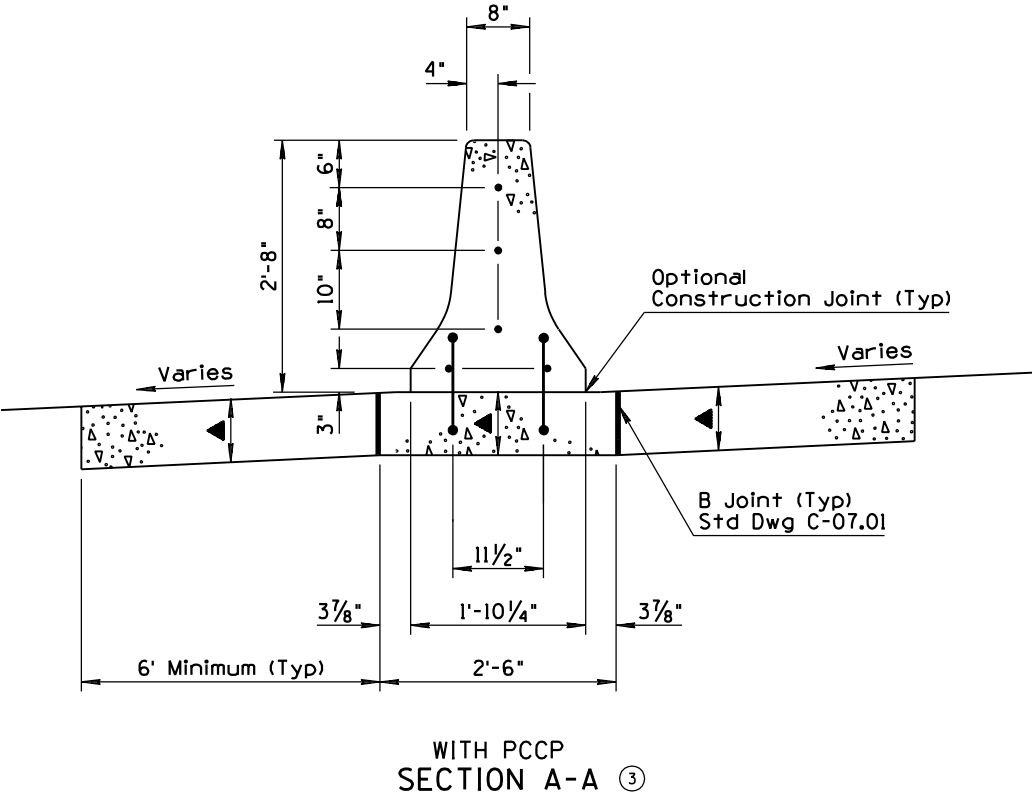
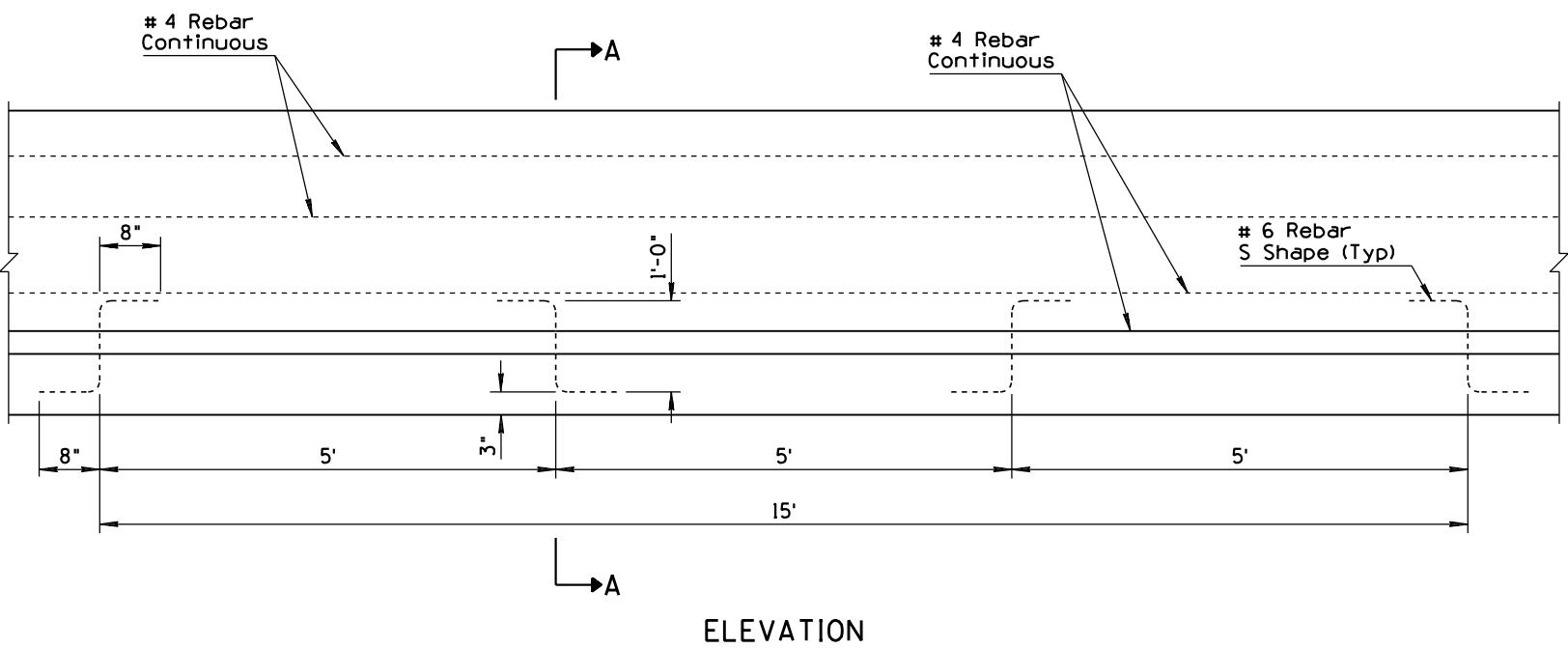
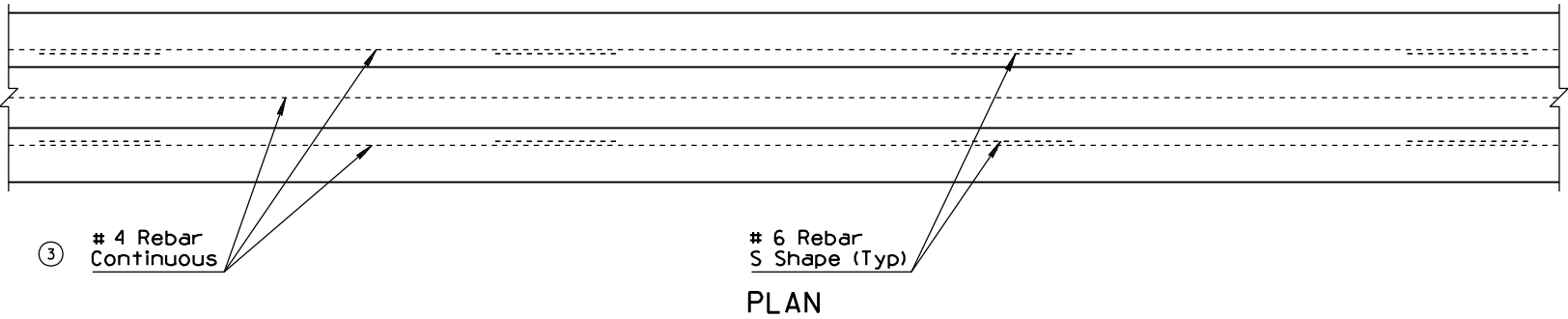
SECTION A-A

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GUARDRAIL TRANSITION, THRIE BEAM TO CONCRETE HALF BARRIER 32" TYPE 'F', (APPROACH), PCCP	DRAWING NO. C-10.31

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG C-10.66 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 3	RLF	9/04
3	RELOCATED ▀ 4 REBARS	RLF	9/04
4			

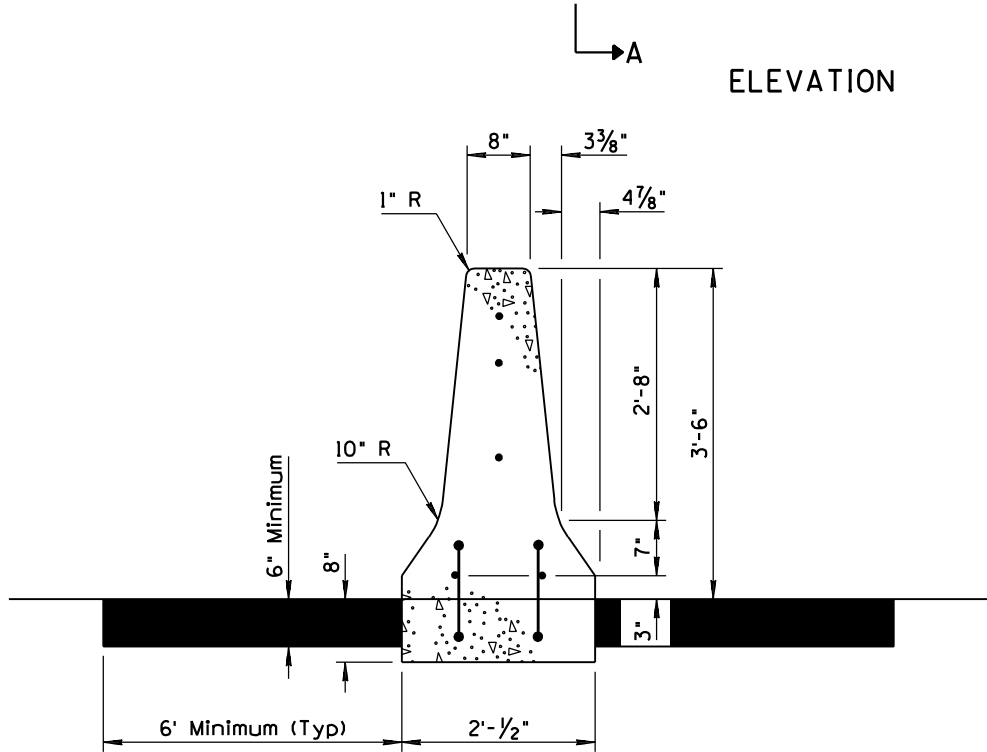
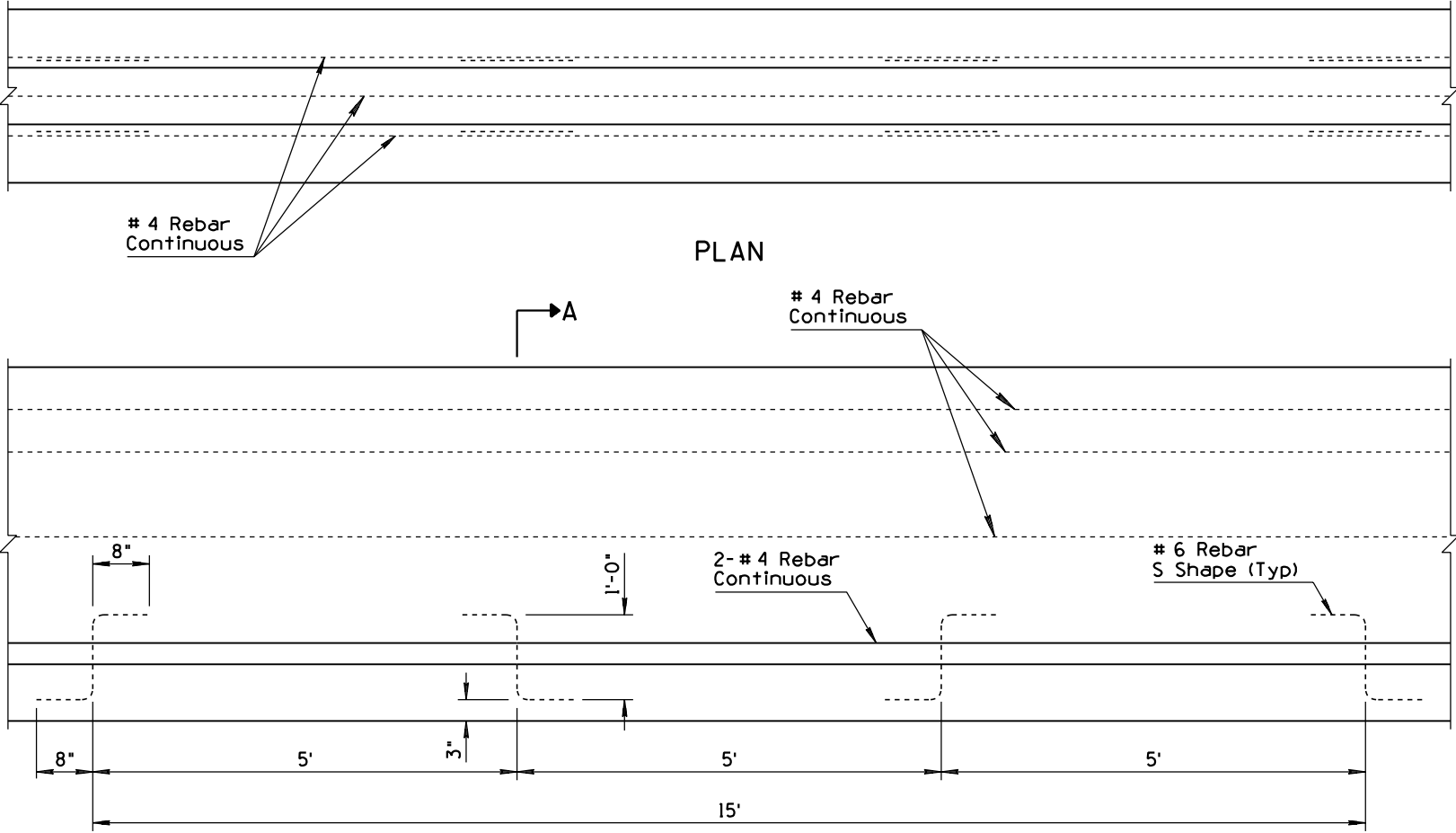
GENERAL NOTES

- Median Barrier shall be constructed by the slip form or formed cast-in-place method.
 - When obstacles prevent the use of slip form equipment, stationary forms shall be used.
 - Concrete shall be Class S, $f'_c=4000$ PSI.
 - If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
 - Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
 - # 4 Rebar shall extend 12" past the construction joint at the completion of the day's pour.
- ▲ Depth to match adjacent PCCP thickness (8" minimum).



APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE MEDIAN BARRIER 32" TYPE 'F' CAST-IN-PLACE ①	DRAWING NO. C-10.40 ①

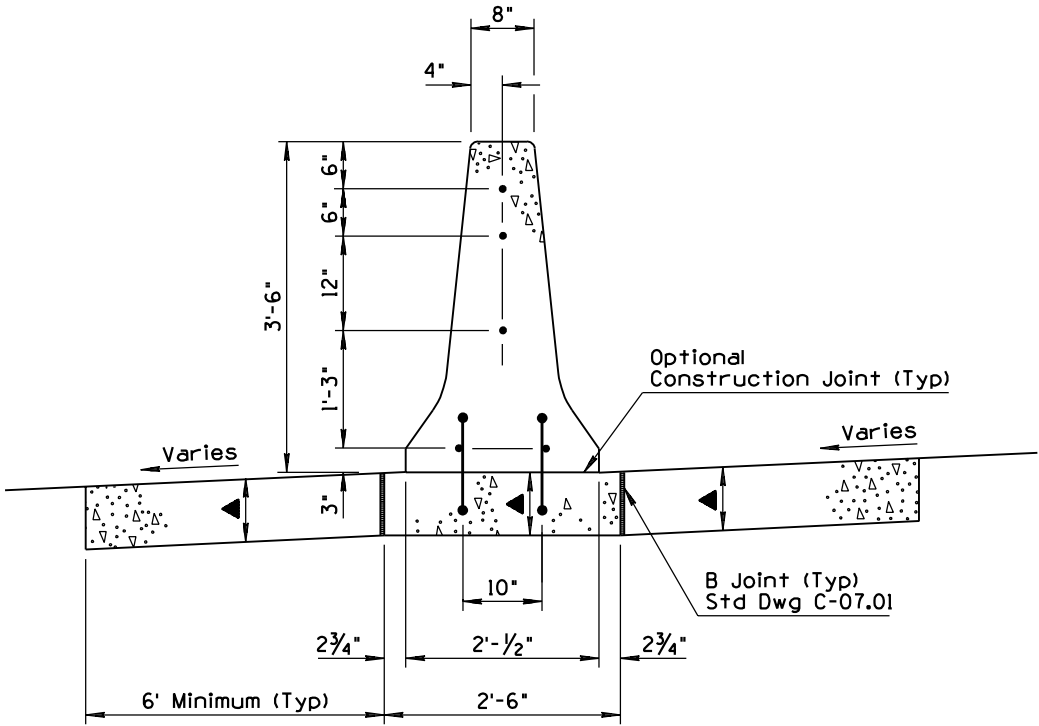
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.67 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 3	RLF	9/04
3	RELOCATED ▀ 4 REBARS	RLF	9/04
4			



WITH AC
SECTION A-A ③

GENERAL NOTES

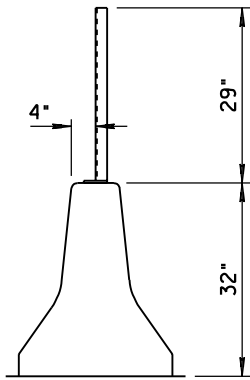
- Median Barrier shall be constructed by the slip form or by the formed cast-in-place method.
- When obstacles prevent the use of slip form equipment, stationary forms shall be used.
- ② Concrete shall be Class S, $f'_c=4000$ PSI.
- If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
- Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
- # 4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
- ▲ Depth to match adjacent PCCP thickness (8" minimum).



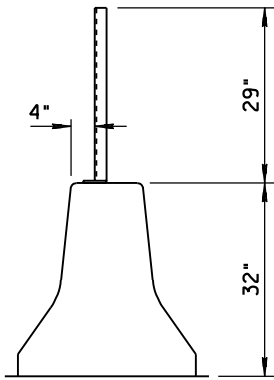
WITH PCCP
SECTION A-A ③

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE MEDIAN BARRIER 42" TYPE 'F' CAST-IN-PLACE ①	DRAWING NO. C-10.41 ①

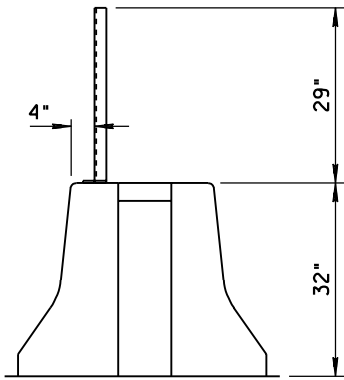
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD DRAWING FROM C-10.97, SHEET 1 OF 3	RLF	10/04
2			
3			
4			



GLARE SCREEN
INSTALLATION ON
STANDARD MEDIAN BARRIER



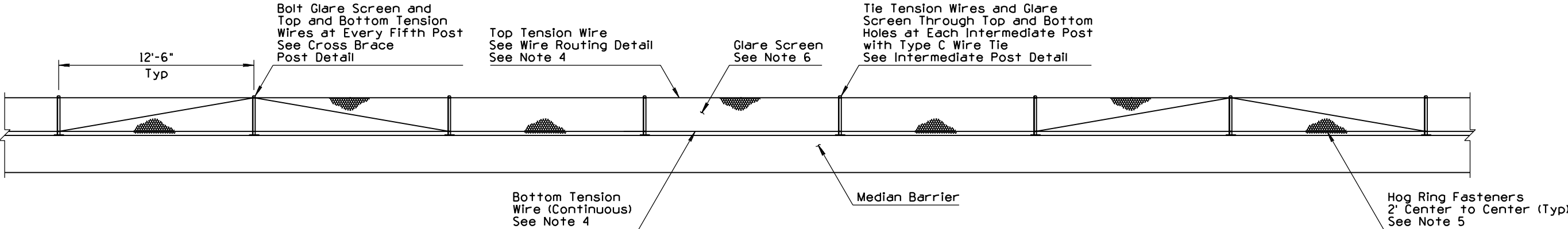
GLARE SCREEN
INSTALLATION ON
MEDIAN BARRIER TRANSITION



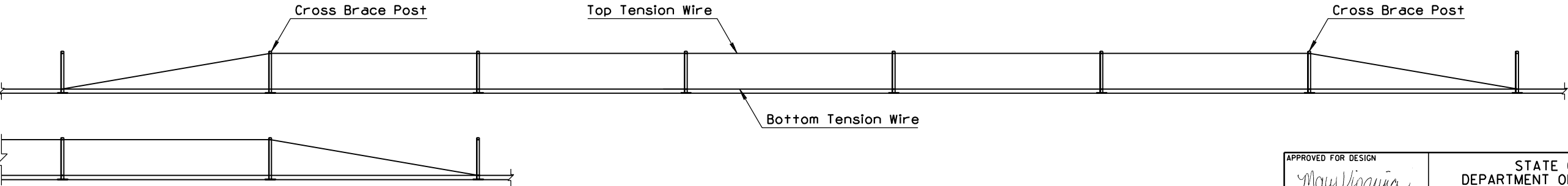
GLARE SCREEN
INSTALLATION ON
HALF BARRIER AT BRIDGE PIER

GENERAL NOTES

1. Posts shall be 12'-6" Center to Center. Structural steel shall conform to ASTM A36, galvanized in conformance with ASTM A123.
2. Hex head bolt shall conform to ASTM A307, galvanized in conformance with ASTM A153 Class C.
3. Helical spring lock washer shall conform to ASTM A313, galvanized in conformance with ASTM A153 Class C.
4. Tension wire: AWG number 9(0.148") galvanized in conformance with ASTM A116 Class 2.
5. Hog ring: AWG number 12 (0.105") galvanized in conformance with ASTM A116 Class 2. Fasten glare screen to top and bottom tension wire spaced approximately 2' apart.
6. Glare Screen: 18 gauge steel, ASTM A526, galvanized in accordance with ASTM A525/G235, expanded to the following dimensions: 1.33" shortway of diamond and 4.0" longway of diamond (center to center of bridges) with a strand width of 0.250" angled at approximately 20° to the plane of the original sheet. Top edge to be shop curled and crimped on 12" center to center. Glare screen shall be installed such that flat portion of screen blocks light from headlights. See Direction Detail.
7. Splices allowed in glare screen at posts only, with one full diamond overlap.
8. Glare screen shall be constructed without interruption to the greatest degree possible.



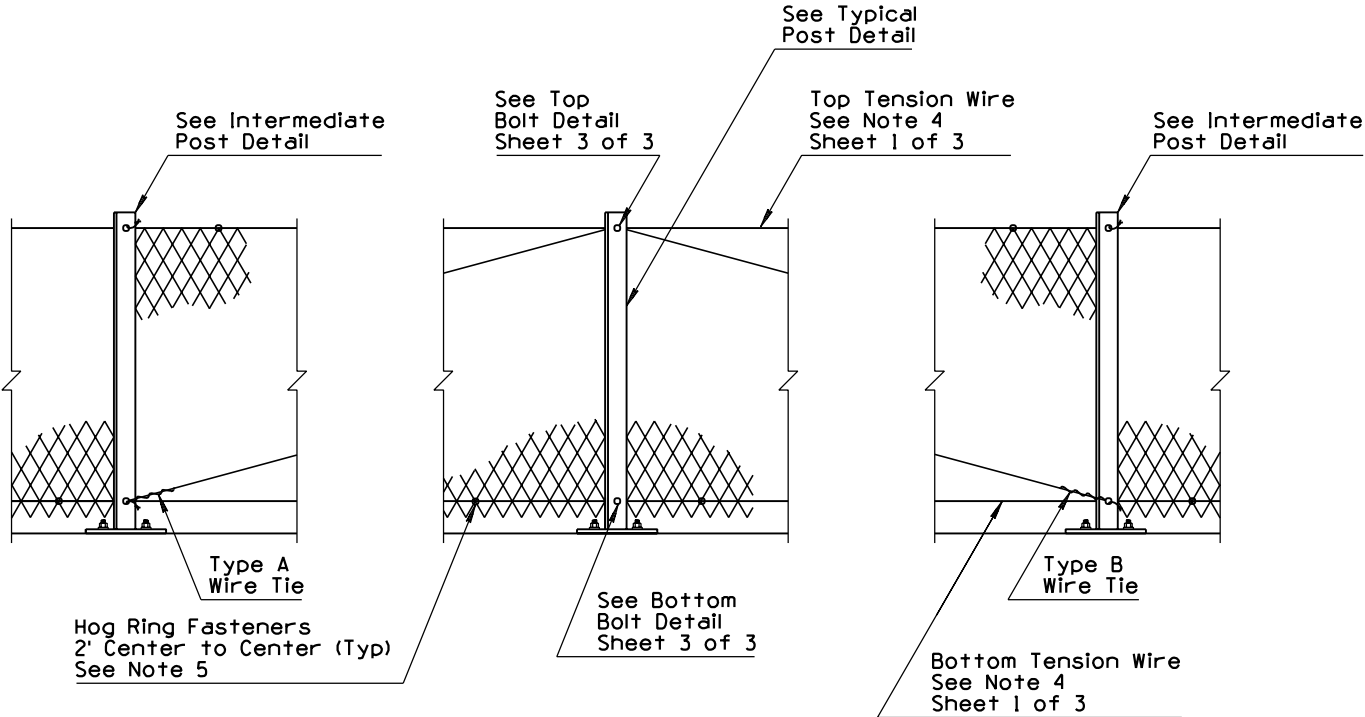
ELEVATION



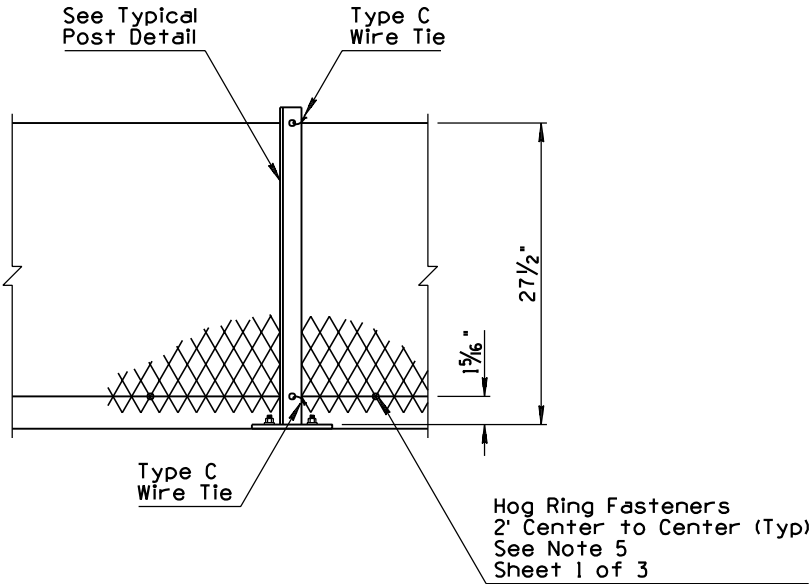
TENSION WIRE ROUTING DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 10/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	1 GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. 1 C-10.42 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM STANDARD DRAWING C-10.97, SHEET 2 OF 3	RLF	9/04
2			
3			
4			

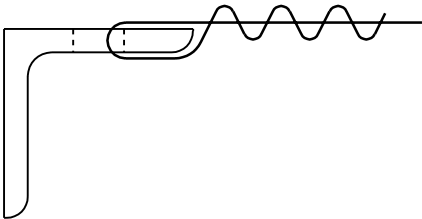


CROSS BRACE POST DETAIL

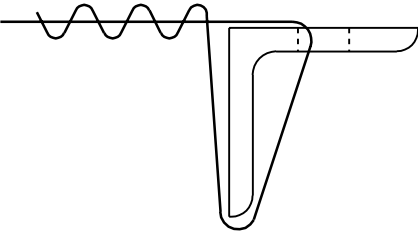


INTERMEDIATE POST DETAIL

① ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

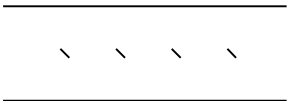


TYPE A WIRE TIE



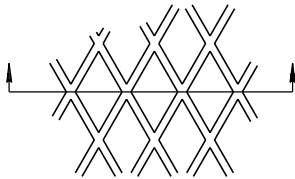
TYPE B WIRE TIE

Traffic
←



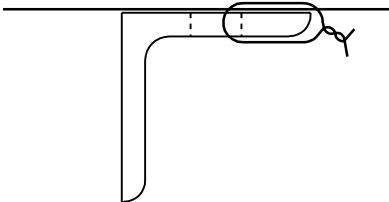
Traffic
→

TOP VIEW SECTION

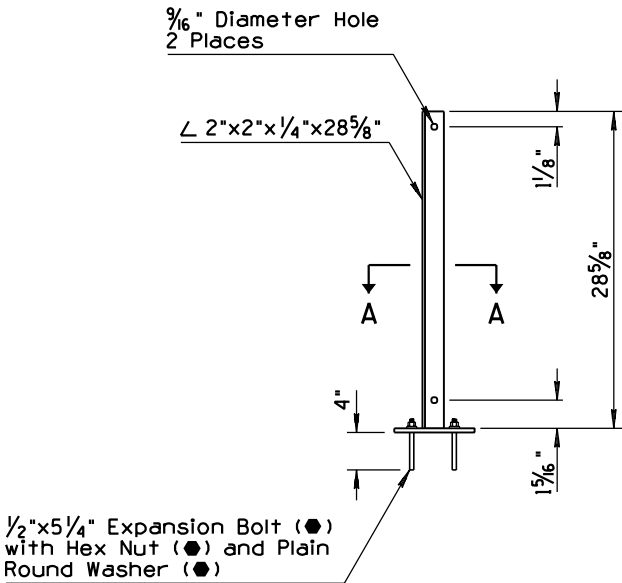


ELEVATION

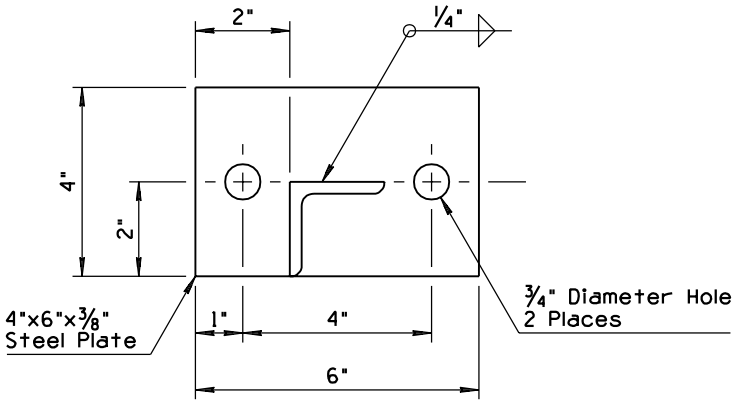
DIRECTION DETAIL



TYPE C WIRE TIE



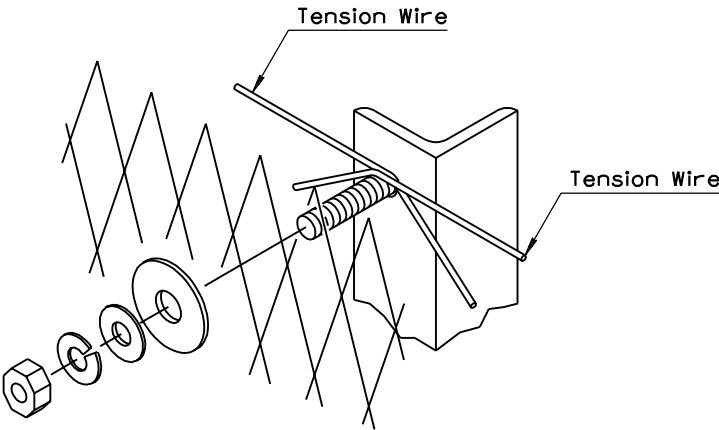
TYPICAL POST DETAIL



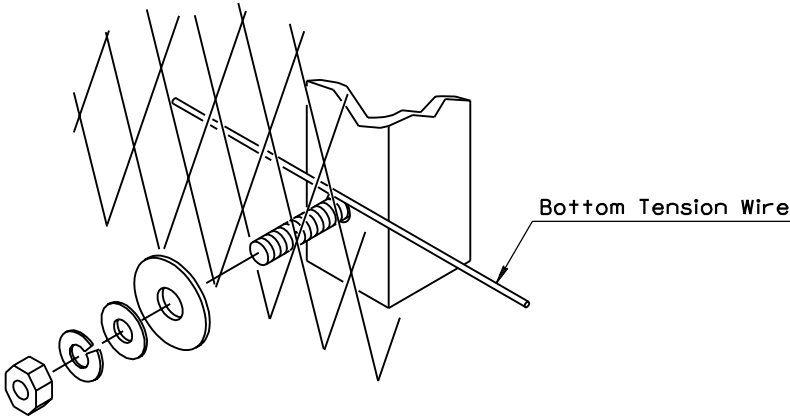
SECTION A-A

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. C-10.42 ① Sheet 2 of 3

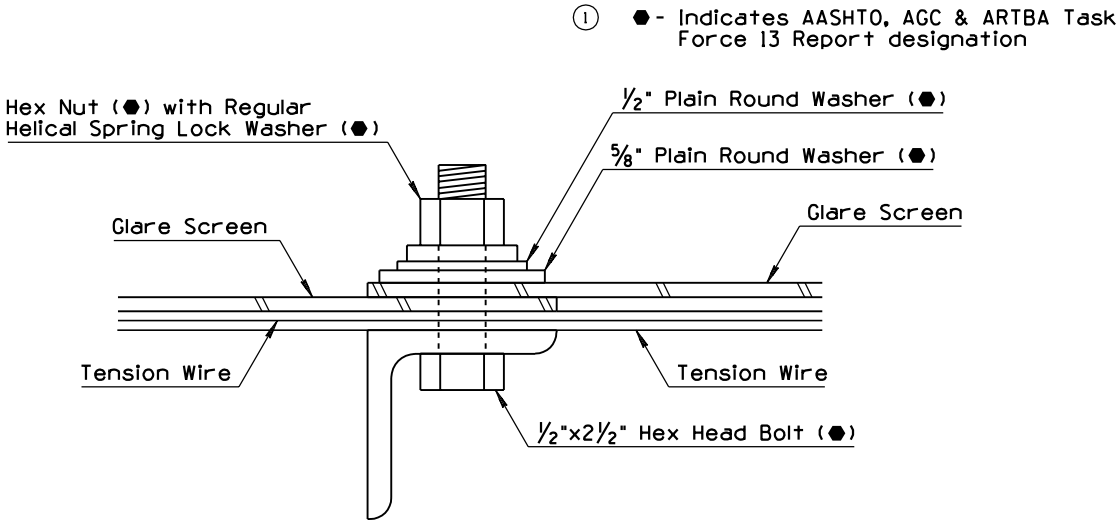
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMES STANDARD DRAWING FROM C-10.97, SHEET 3 OF 3	RLF	9/04
2			
3			
4			



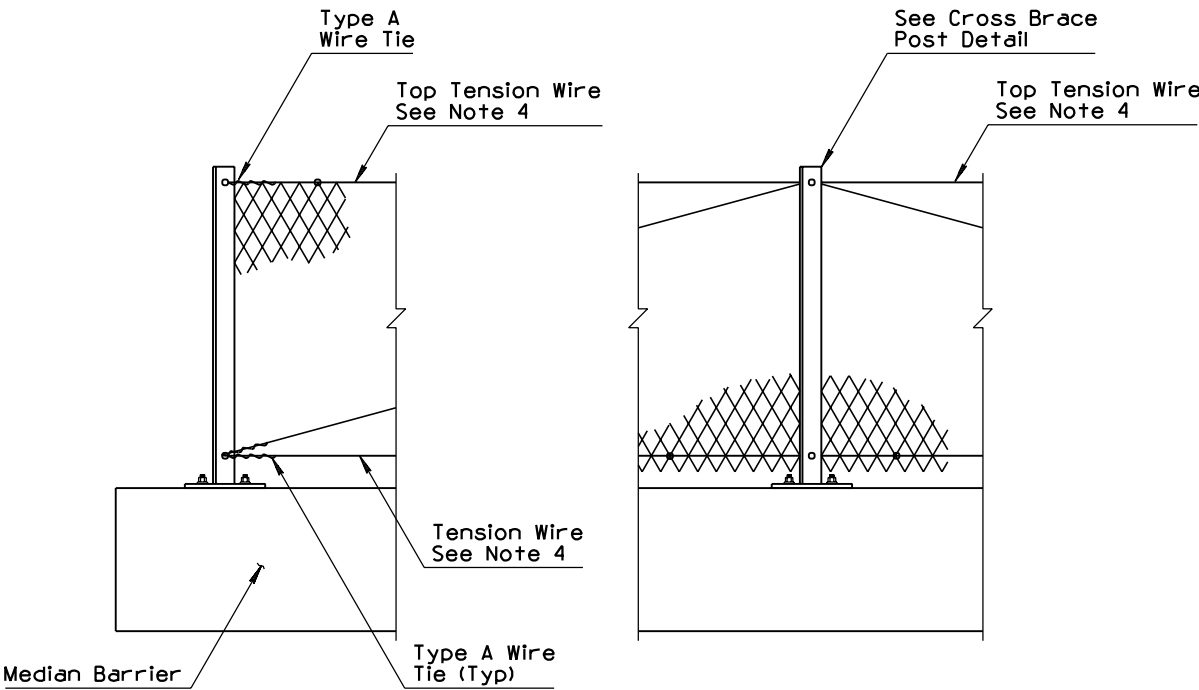
TOP BOLT DETAIL



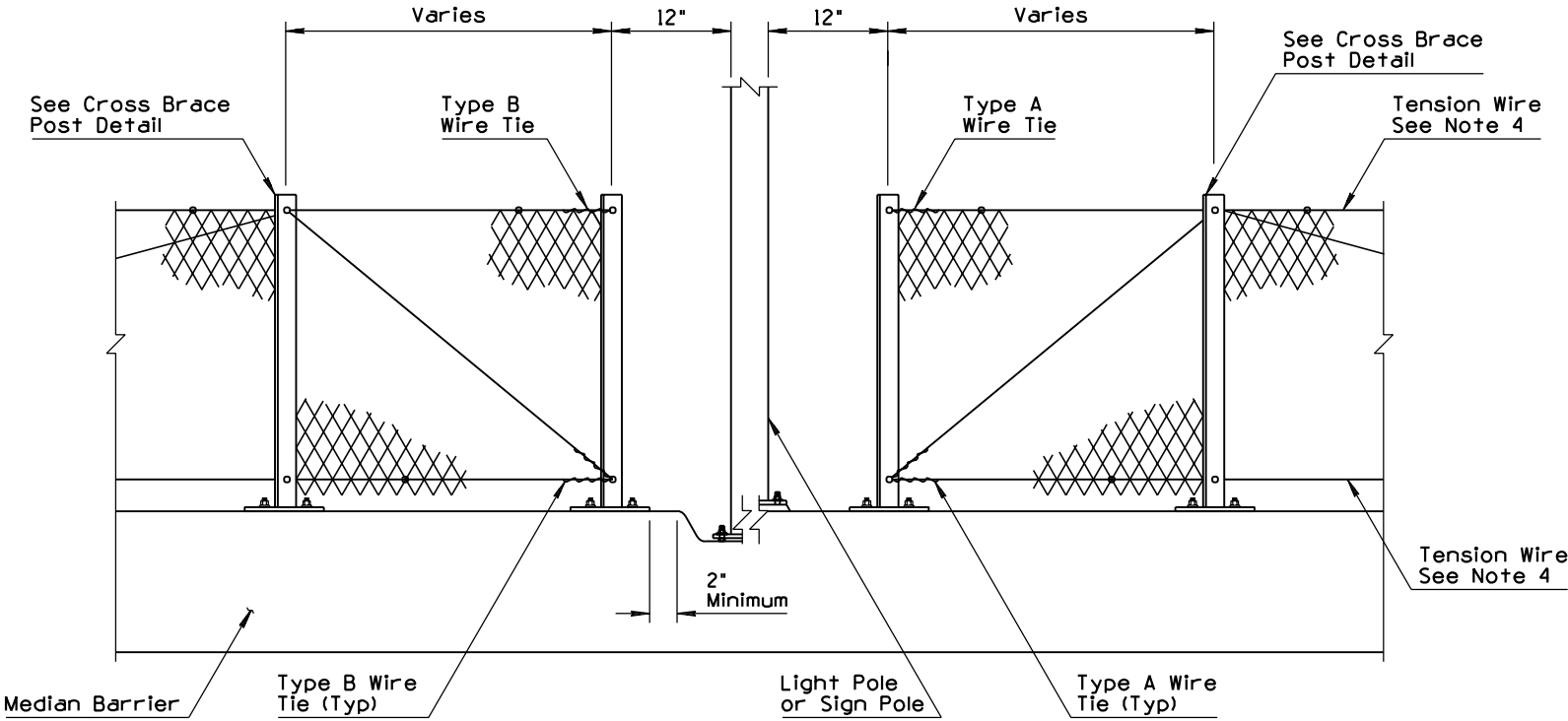
BOTTOM BOLT DETAIL



TOP BOLT SECTION



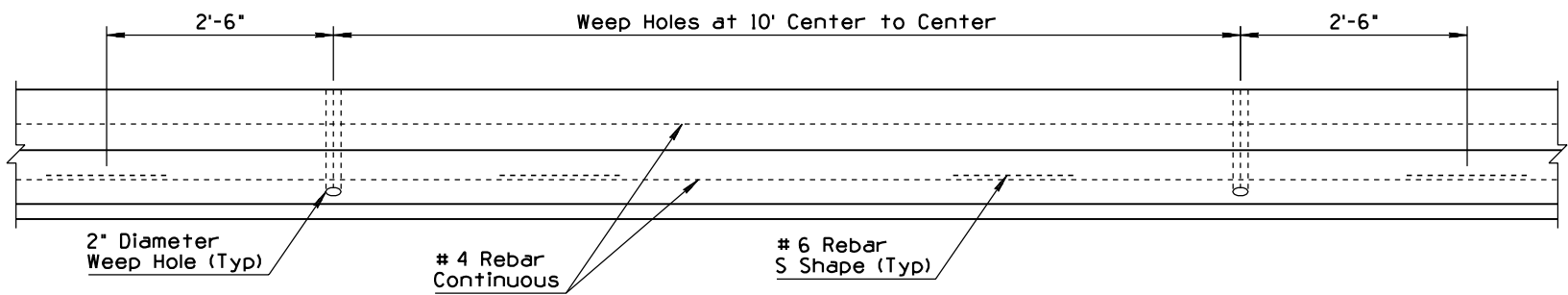
TERMINATION DETAIL



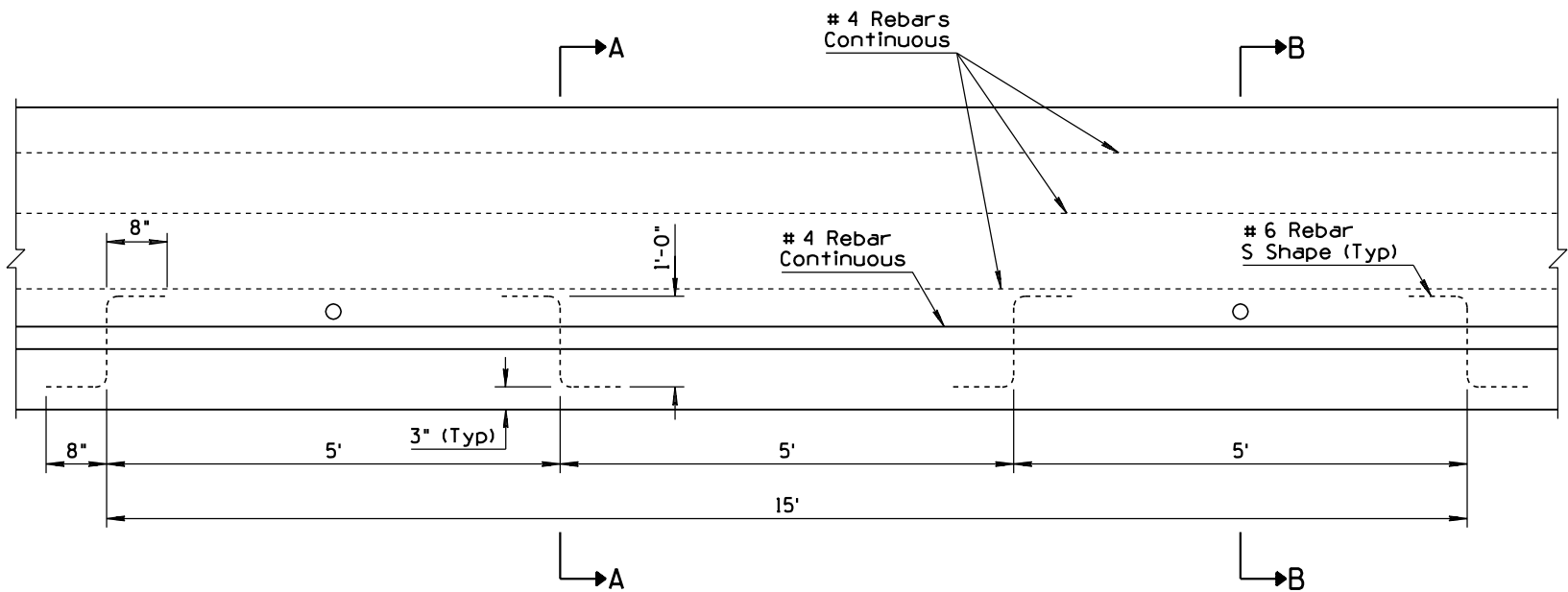
OBSTRUCTION DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. ① C-10.42 Sheet 3 of 3

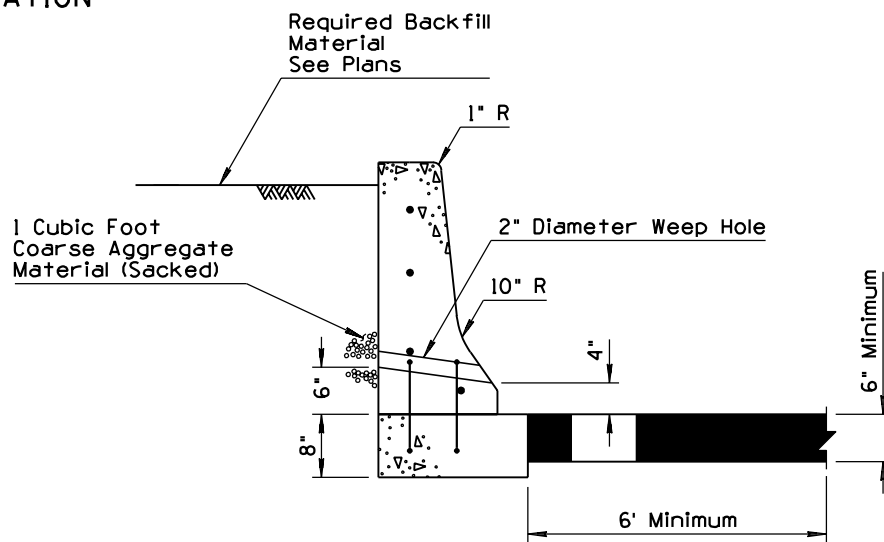
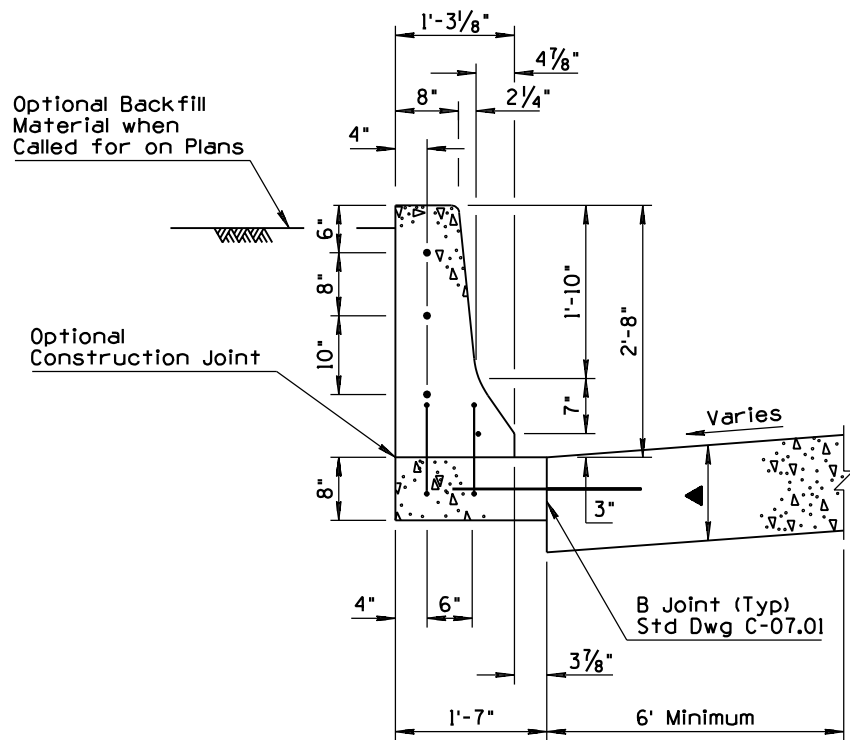
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.60 & REVISED TITLE	RLF	9/04
2			
3			
4			



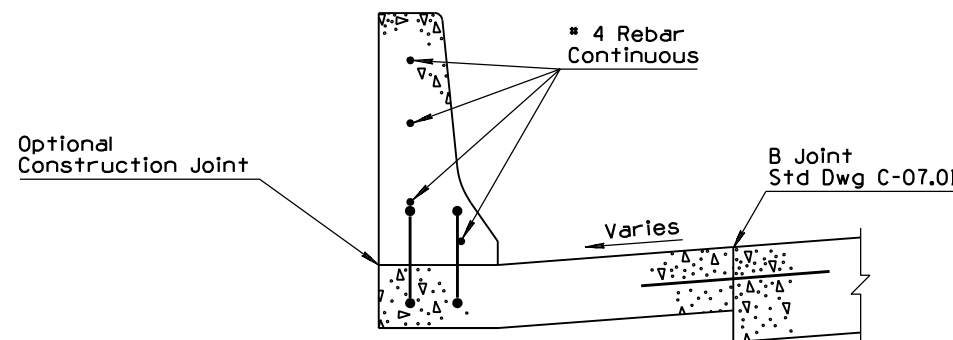
PLAN



ELEVATION



WITH AC SECTION B-B
SEE SECTION A-A FOR
TYPICAL REBAR PLACEMENT



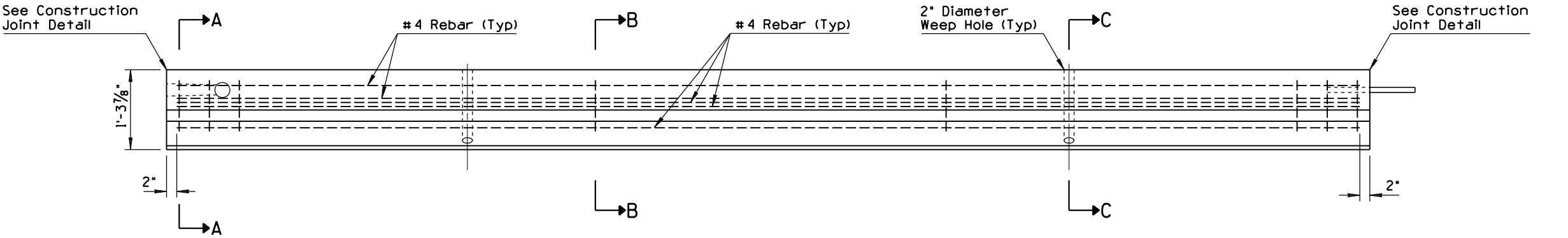
WITH PCCP
BARRIER WITH GUTTER
(SEE STD DWG C-10.52)

GENERAL NOTES

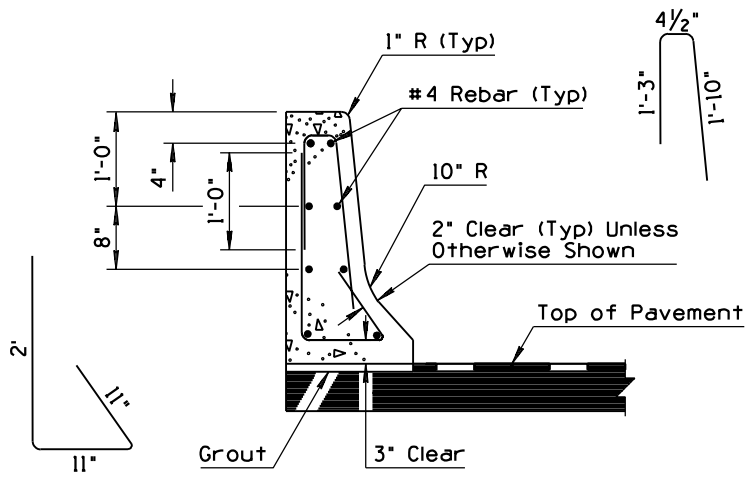
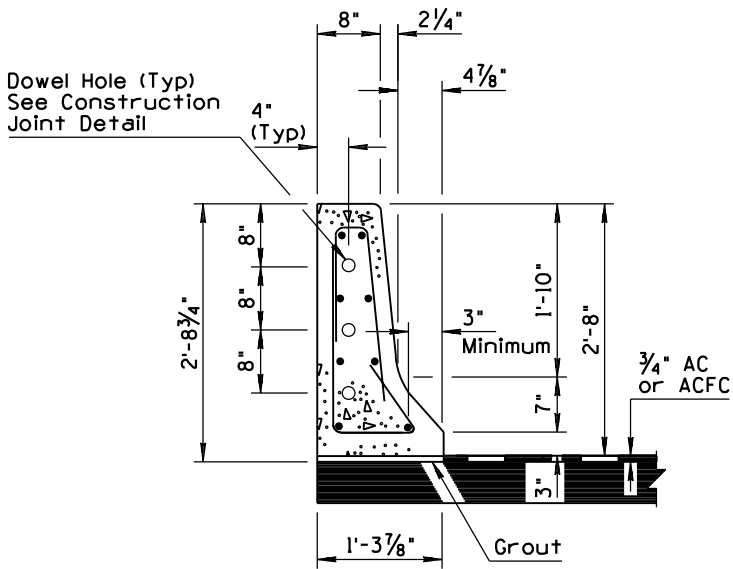
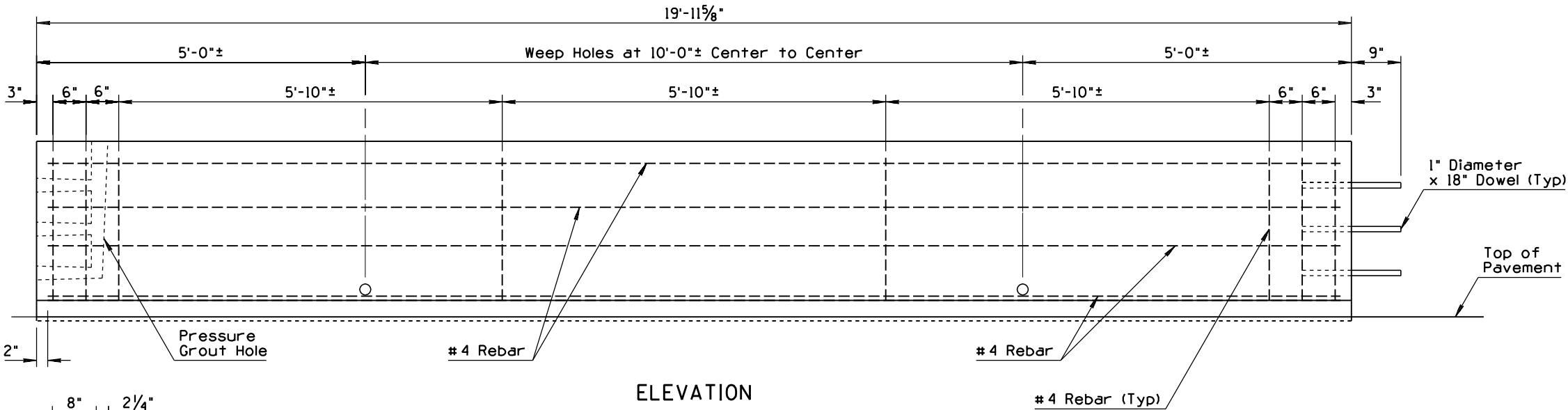
1. Half Barrier shall be constructed by the slip or fixed form method.
 2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
 3. Concrete shall be Class S, $f'_c=4000$ PSI.
 4. If the footing and barrier are cast monolithically, #6 S shape rebar will not be required.
 5. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
 6. Weep holes shall be placed whenever barrier is backfilled unless otherwise indicated on the plans.
- ▲ Depth to match adjacent PCCP thickness (8" Minimum).

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' CAST-IN-PLACE	DRAWING NO. C-10.50 Sheet 1 of 2

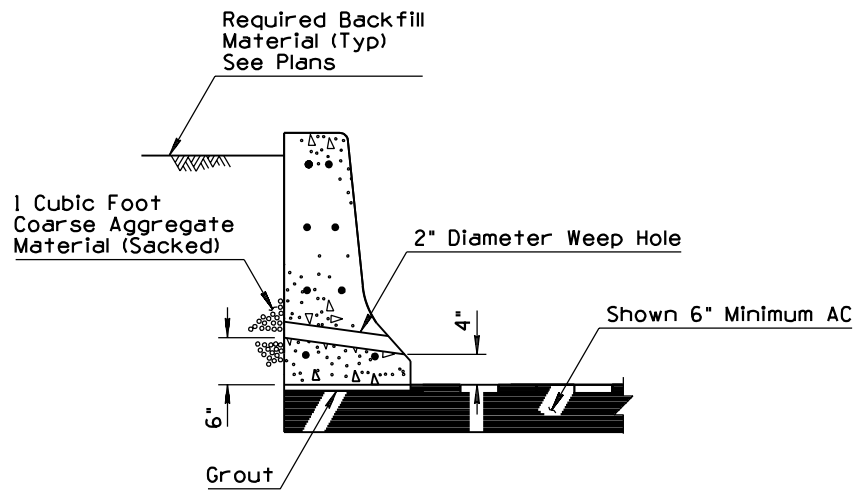
NO.	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2			
3			
4			



PLAN

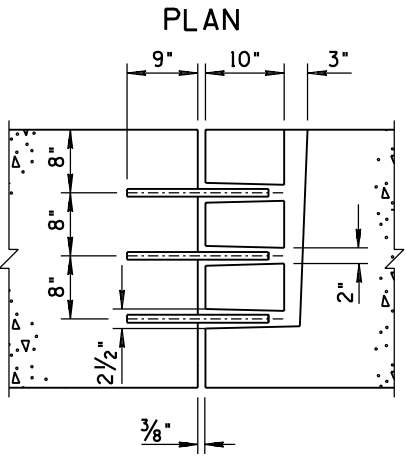
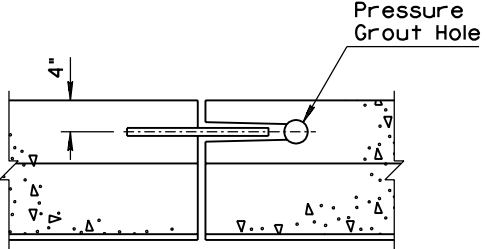


AT REBAR
SECTION B-B
SEE SECTION A-A FOR
TYPICAL REBAR PLACEMENT



AT WEEP HOLE
SECTION C-C
SEE SECTION A-A FOR
TYPICAL REBAR PLACEMENT

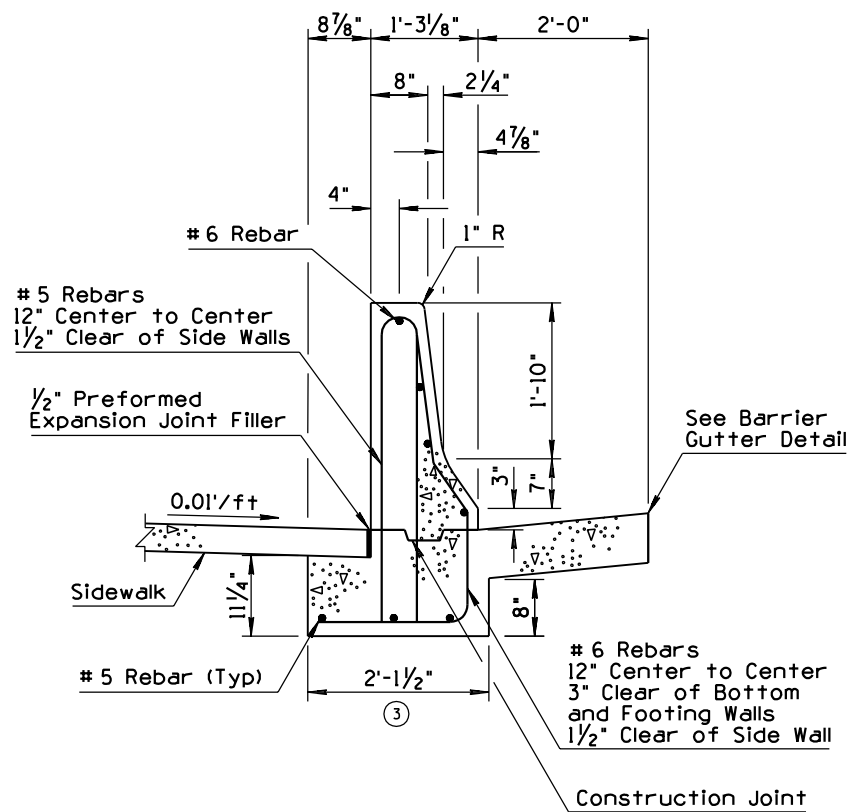
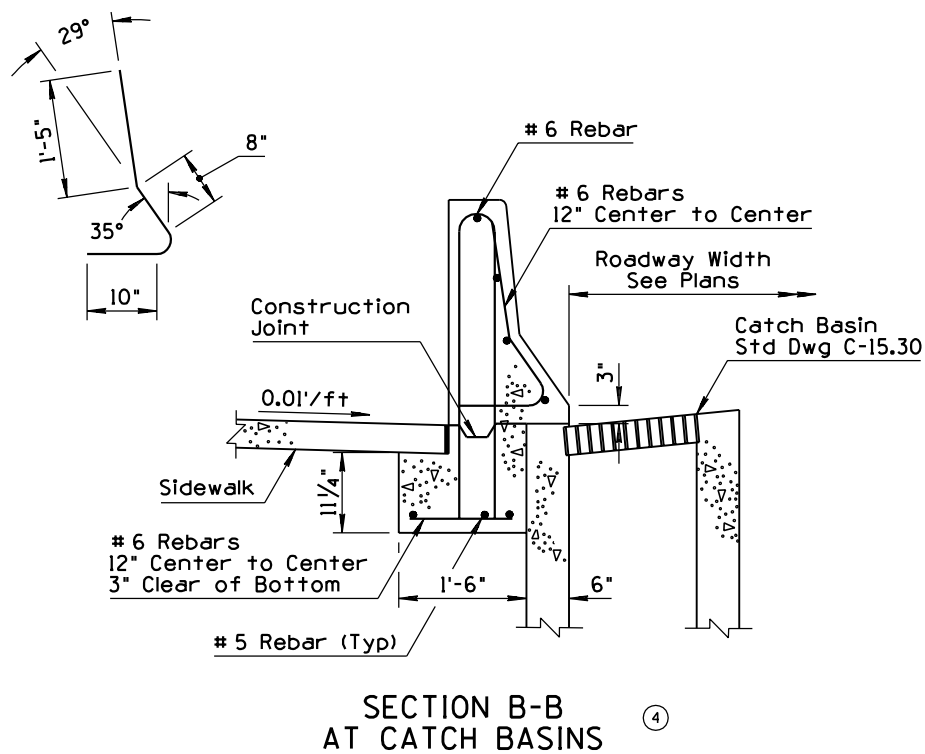
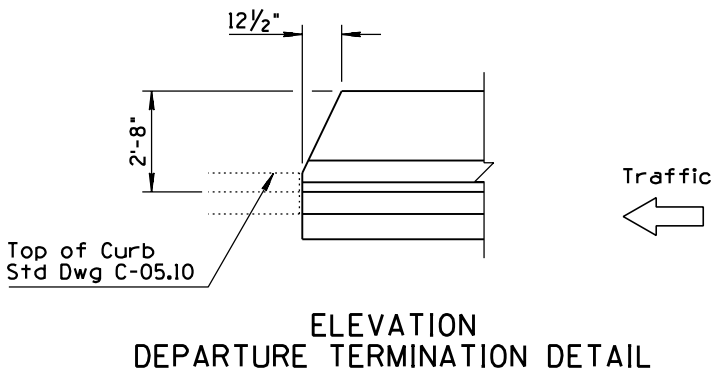
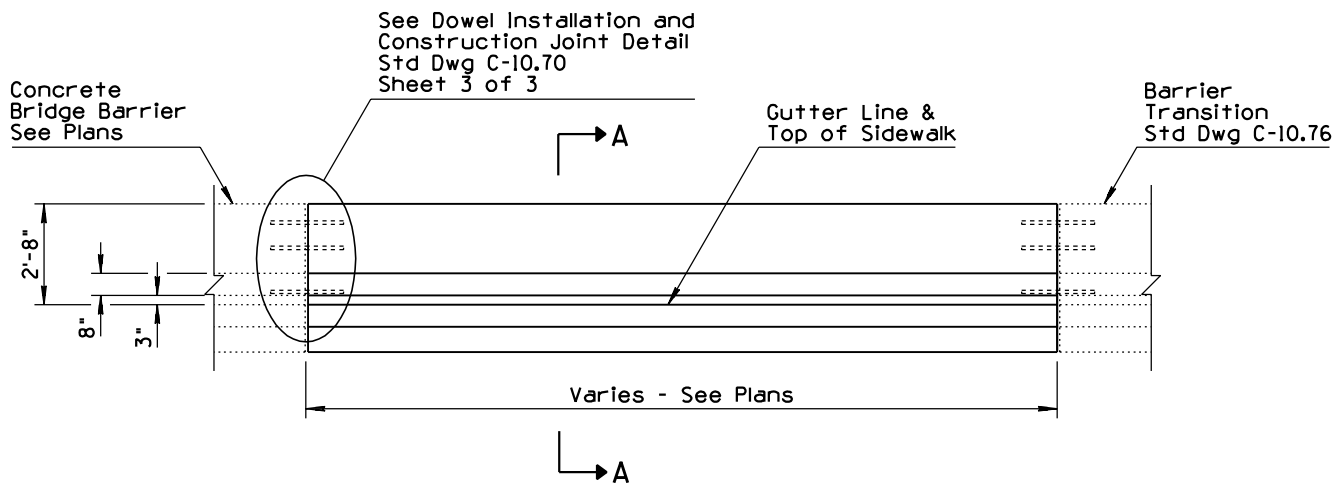
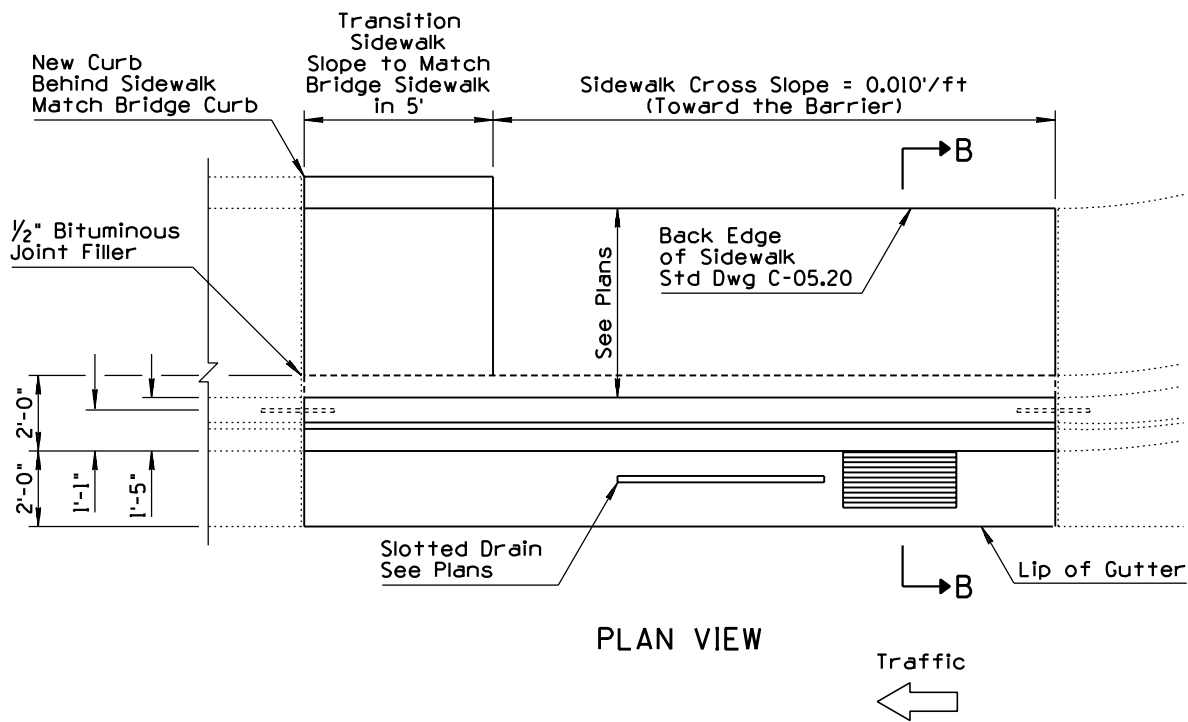
- ### GENERAL NOTES
- Concrete Half Barrier shall be precast.
 - Concrete shall be Class S, $f'_c=4000$ PSI.
 - Pavement thickness adjacent to Half Barrier shall be 3/4" minimum.
 - The Half Barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
 - Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
 - All bend dimensions for rebar are out-to-out of rebars.
 - Weep holes shall be placed whenever Half Barrier is backfilled unless otherwise indicated on the plans.



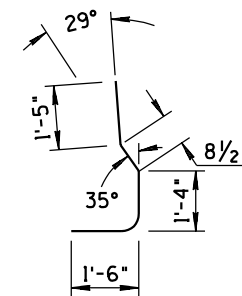
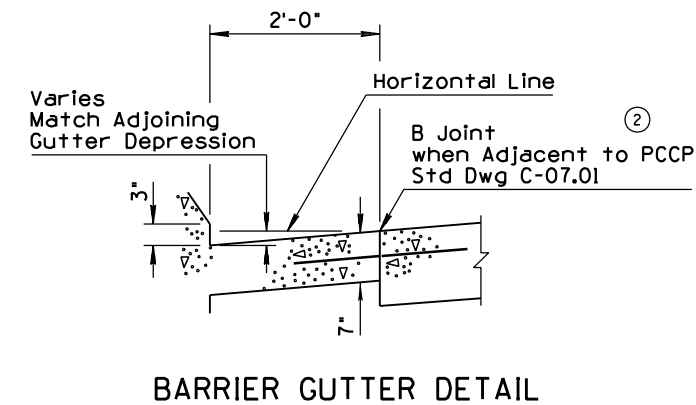
CONSTRUCTION JOINT DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' PRECAST	DRAWING NO. C-10.50 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.65 & REVISED TITLE	RLF	9/04
2	ADDED B JOINT CALLOUT	RLF	9/04
3	REVISED DIMENSION	RLF	9/04
4	MODIFIED SECTION B-B	RLF	9/04

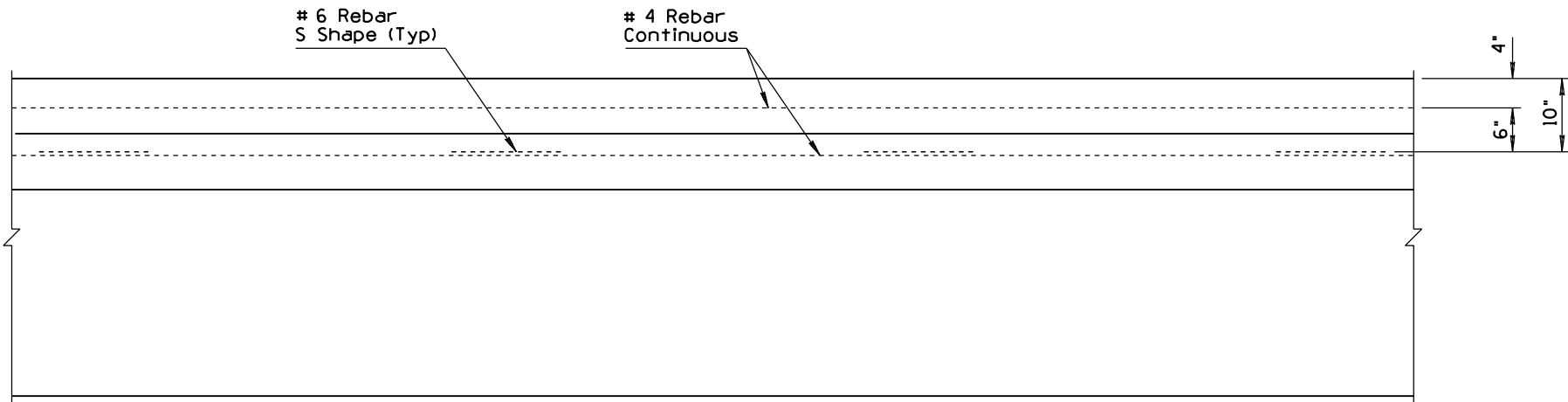


- ### GENERAL NOTES
- Concrete shall be Class S, f'c=4000 PSI.
 - Rebar shall conform to Std Spec 1003.
 - Rebar shall have 2" minimum clear cover unless otherwise noted.
 - See drainage sheets for slotted drain and catch basin details.
 - Departure termination may be substituted for Std Dwg C-10.76 barrier transition under departure conditions.
 - See Std Dwg C-05.20 for sidewalk construction.
 - All bend dimensions for rebar are out-to-out of rebars.

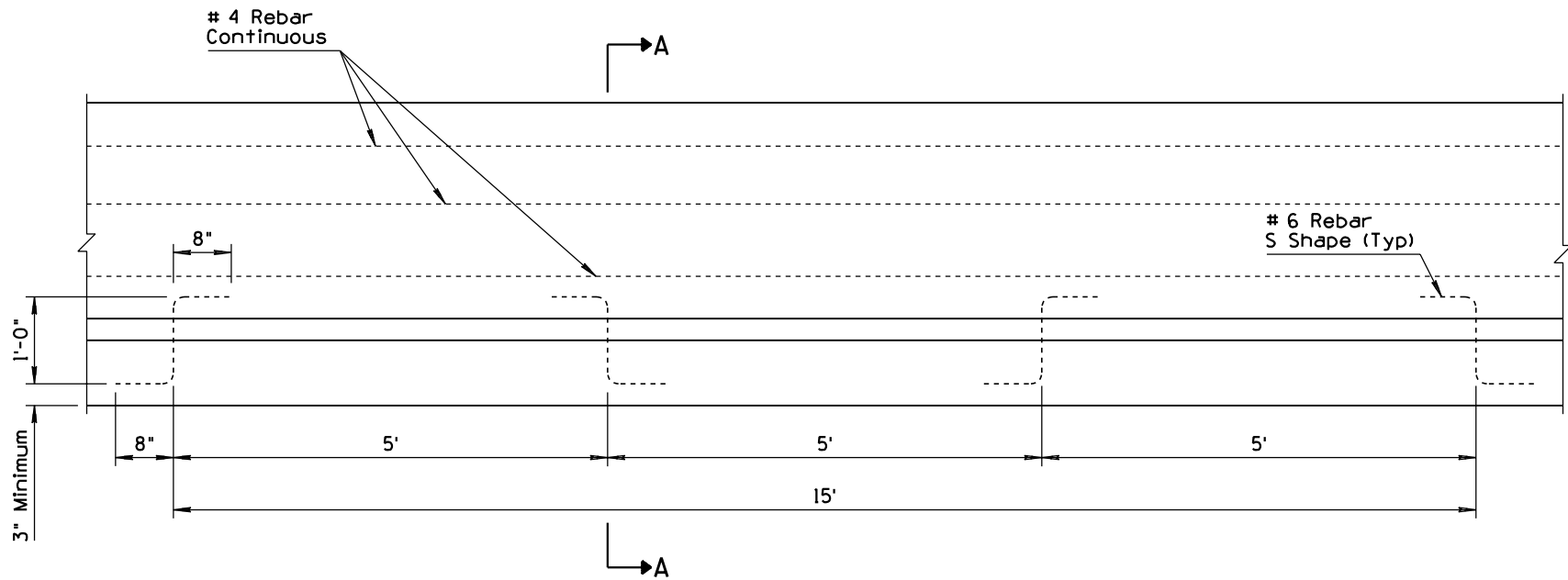


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32' TYPE 'F' WITH SIDEWALK	DRAWING NO. C-10.51

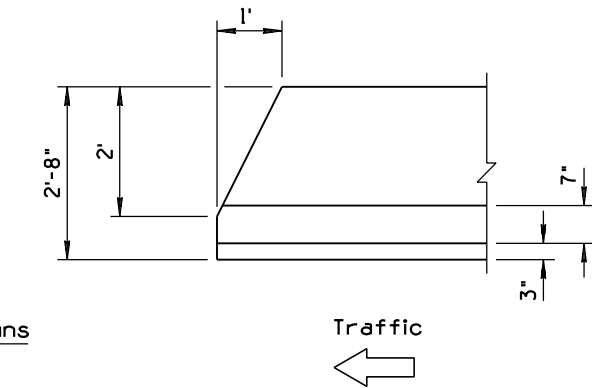
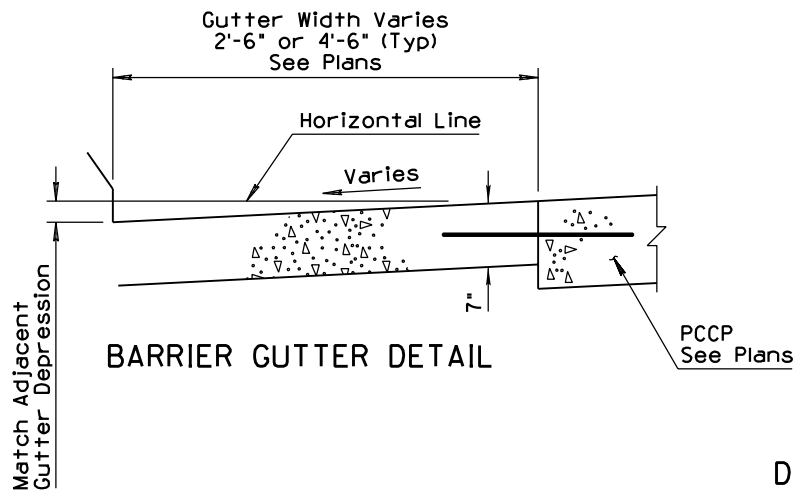
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.62 TO C-10.52 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 9	RLF	9/04
3	REVISED GENERAL NOTE 3	RLF	9/04
4			



PLAN



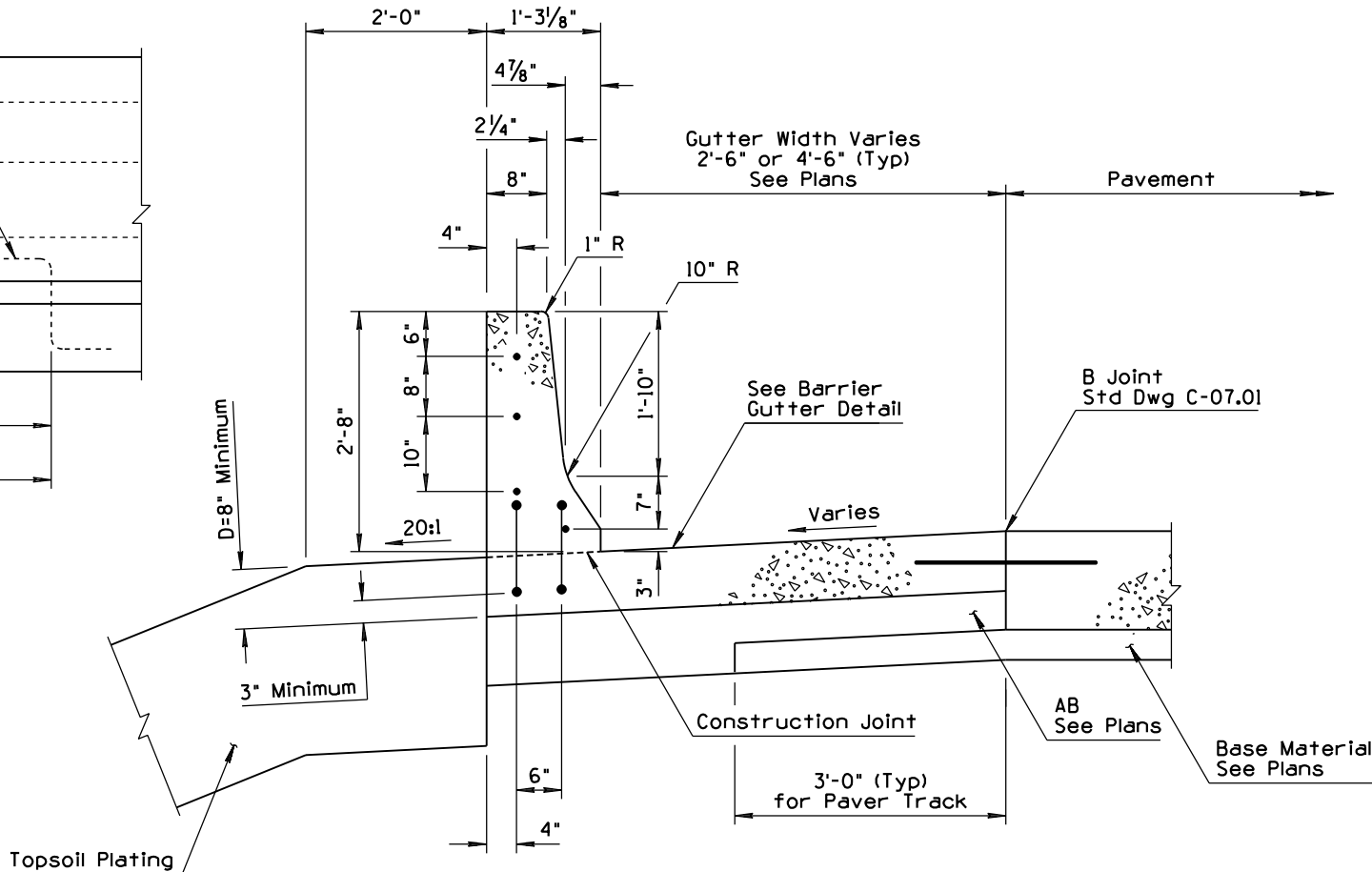
ELEVATION



ELEVATION
DEPARTURE TERMINATION WITHOUT GUARDRAIL

GENERAL NOTES

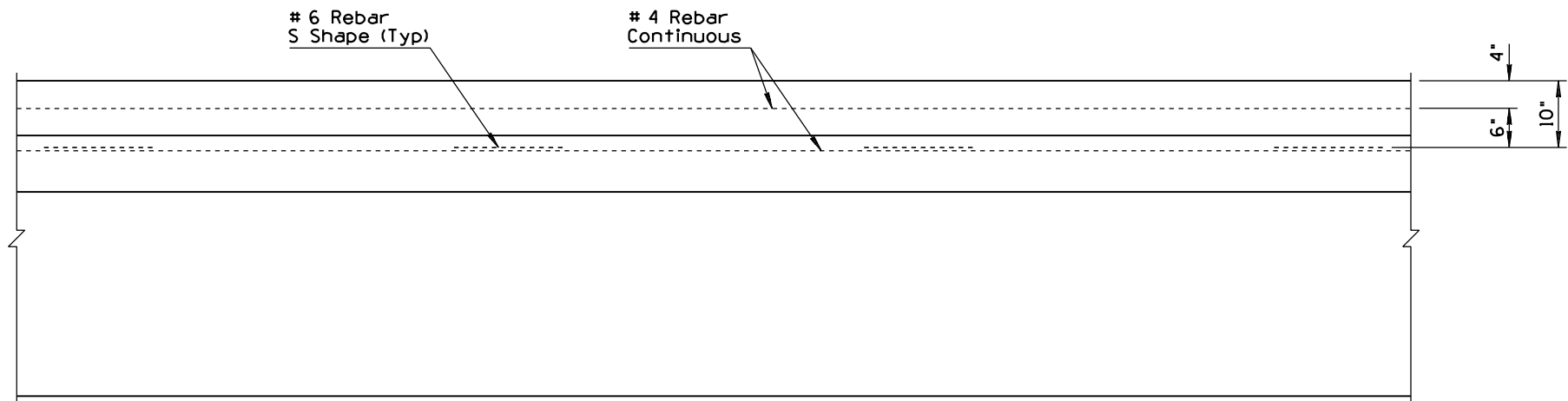
1. Half Barrier shall be constructed by the slip or fixed form method.
2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
3. Concrete shall be Class S, $f'_c=4000$ PSI.
4. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
5. Thickness of gutter, "D" can be adjusted to match the PCCP thickness, as approved by the Engineer.
6. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the 2" gutter depression is not applicable.
7. At bridges, the cross slope of the gutter shall transition to match the cross-slope of the bridge. Length of the transition is 15'.
8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP. Joints shall be hand-tooled or sawn.
9. Whenever Half Barrier is backfilled, see Std Dwg C-10.50 for weep hole details, unless otherwise specified on the plans.



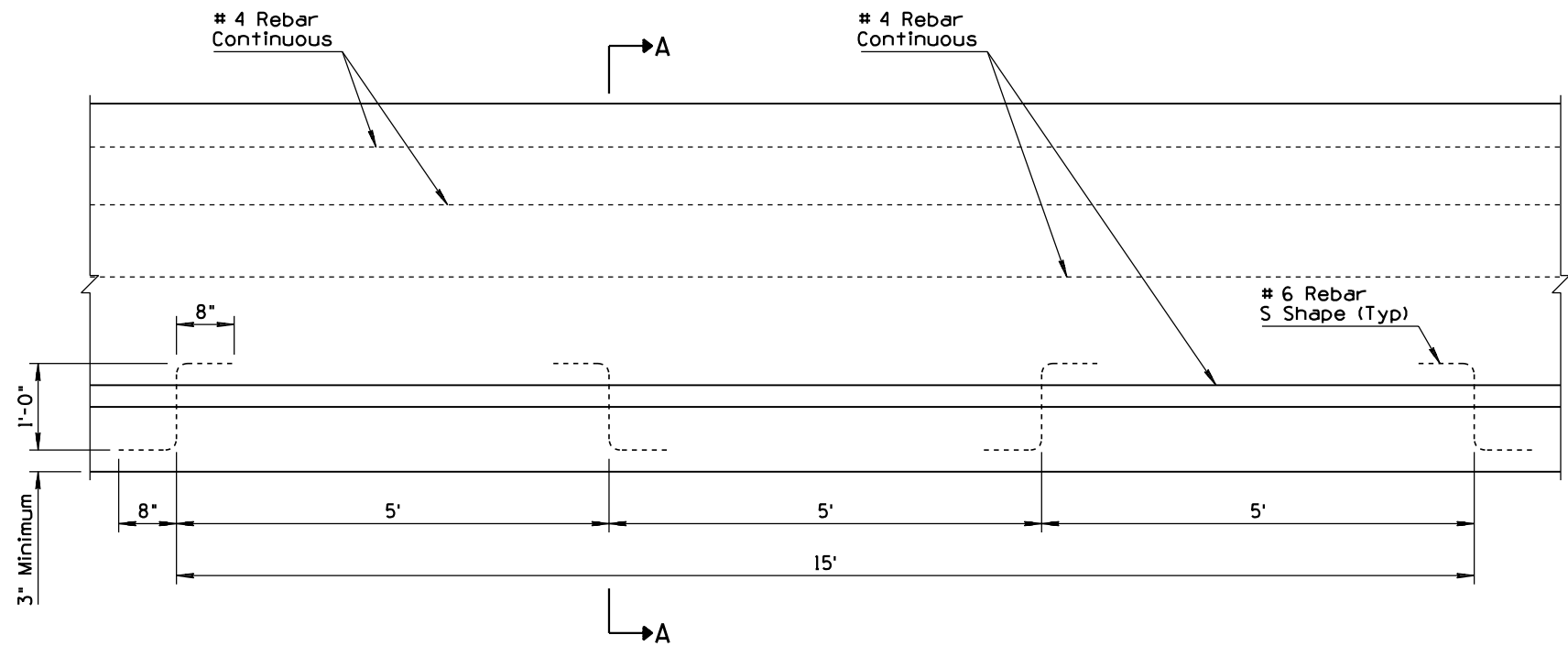
SECTION A-A

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' WITH GUTTER	DRAWING NO. C-10.52

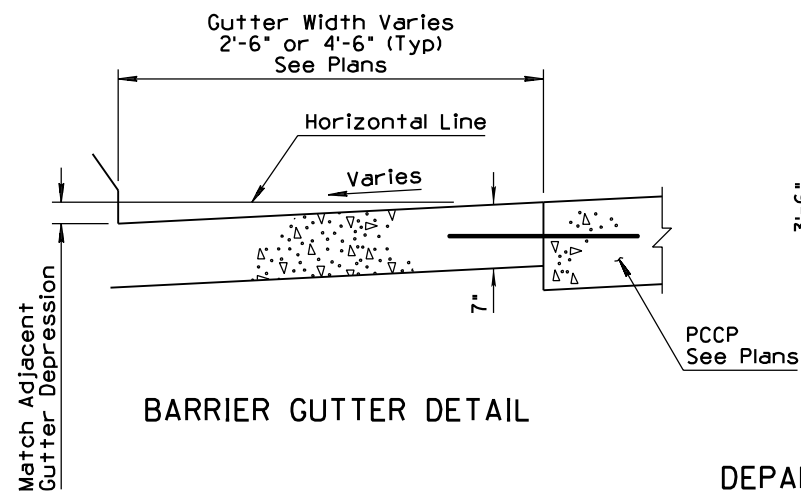
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.63 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 9	RLF	9/04
3	REVISED GENERAL NOTE 3	RLF	9/04
4			



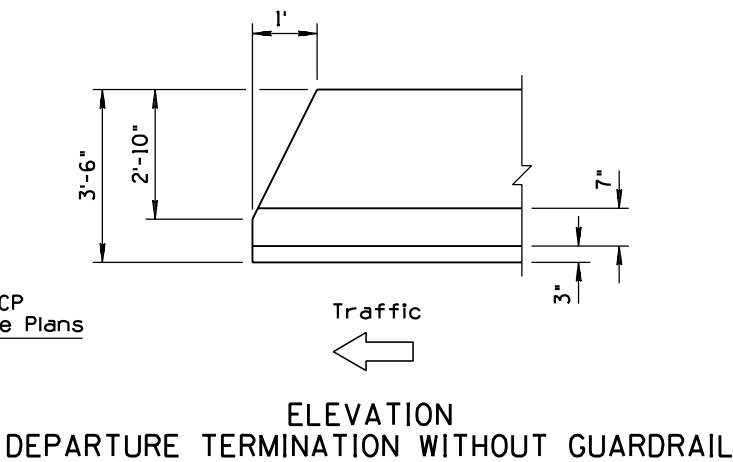
PLAN



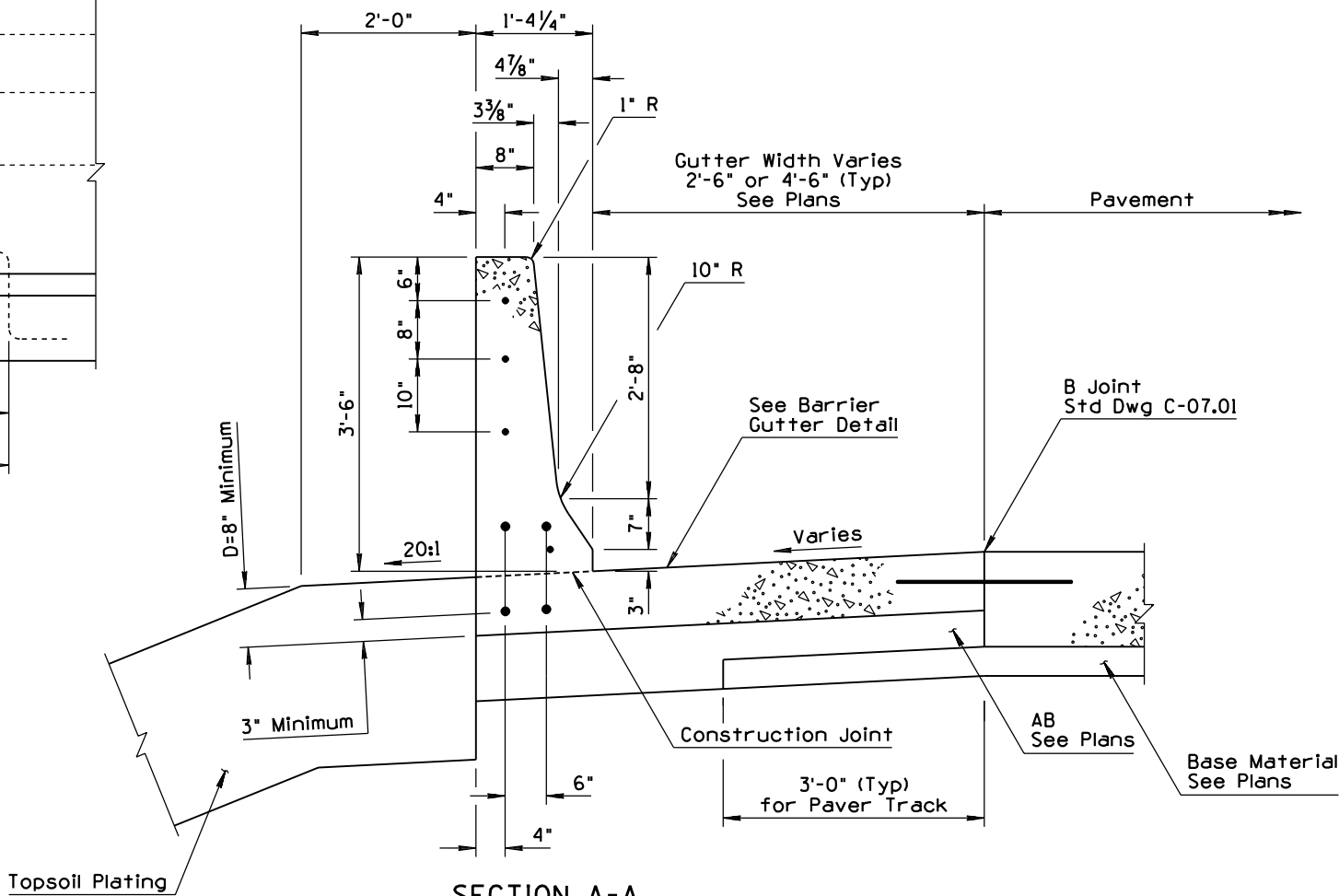
ELEVATION



BARRIER GUTTER DETAIL



ELEVATION
DEPARTURE TERMINATION WITHOUT GUARDRAIL



SECTION A-A

GENERAL NOTES

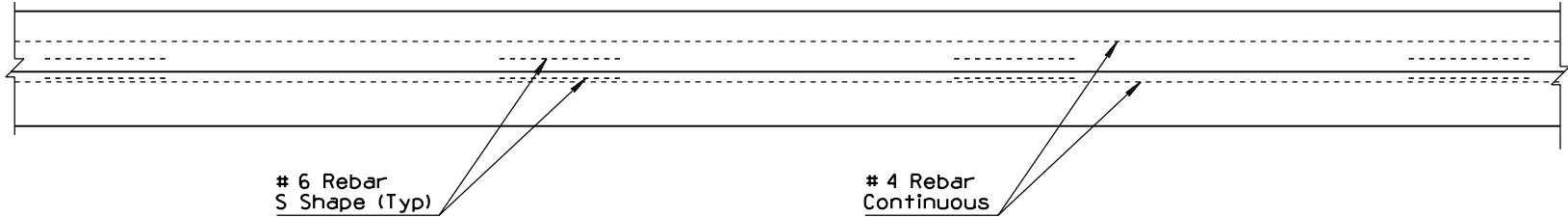
1. Half Barrier shall be constructed by the slip or fixed form method.
2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
3. Concrete shall be Class S, $f'_c=4000$ PSI.
4. # 4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
5. Thickness of gutter, "D" can be adjusted to match the PCCP thickness, as approved by the Engineer.
6. When the pavement slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the 2" gutter depression is not applicable.
7. At bridges, the cross slope of the gutter shall transition to match the cross slope of the bridge. Length of the transition is 15'.
8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP. Joints shall be hand tooled or sawn.
9. Whenever Half Barrier is backfilled, see Std Dwg C-10.50 for weep hole details, unless otherwise indicated on the plans.

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 42' TYPE 'F' WITH GUTTER	DRAWING NO. C-10.53

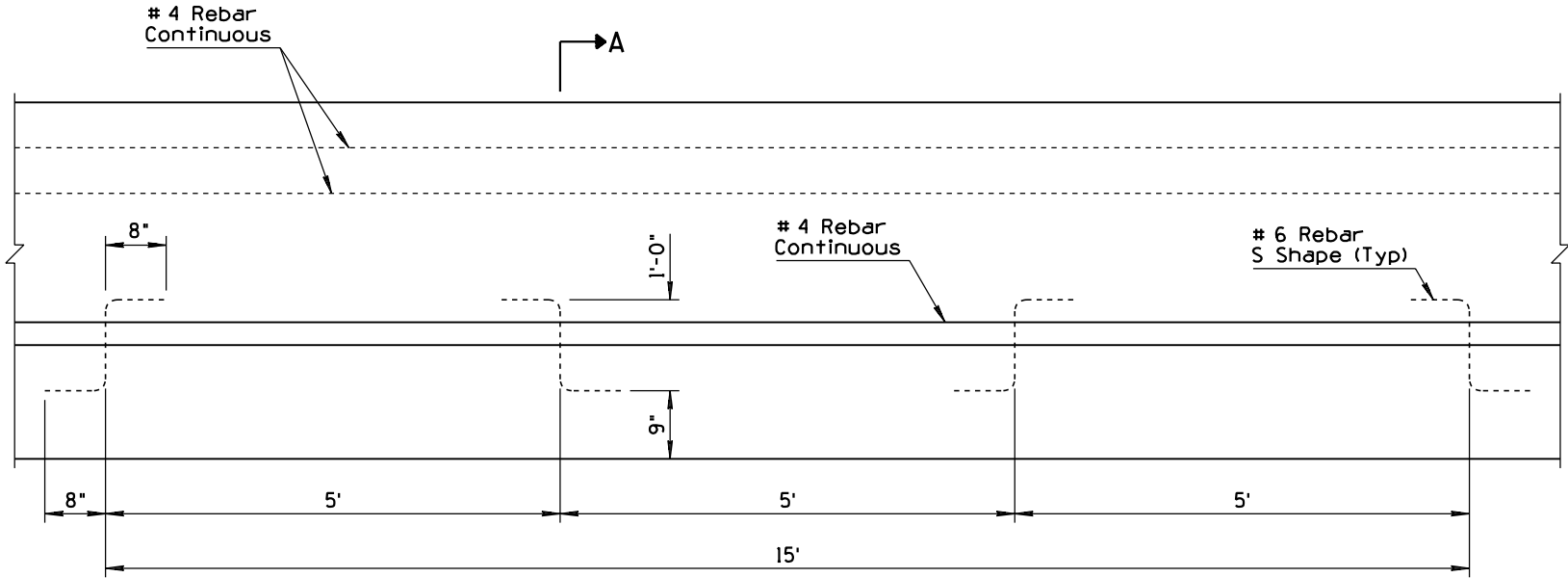
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-1064, 1 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 1	RLF	9/04
3	RELOCATED # 4 REBAR	RLF	9/04
4			

GENERAL NOTES

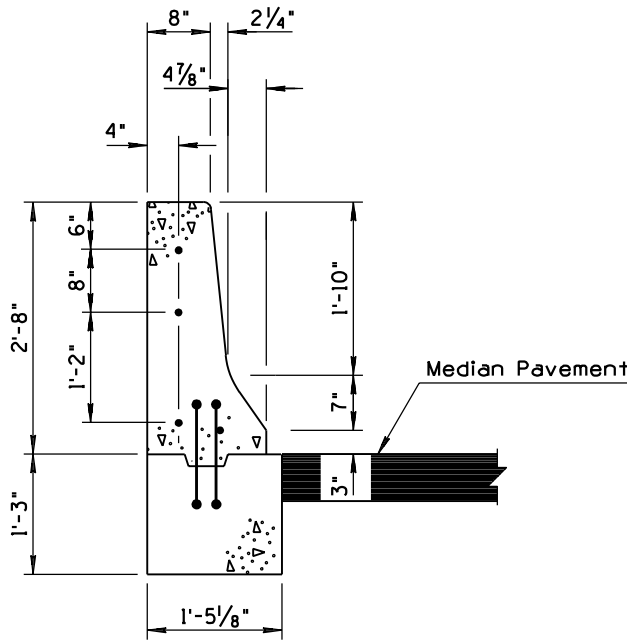
1. Concrete shall be Class S, $f'_c=4000$ PSI.
2. If the footing and Half Barrier are cast monolithically, # 6 S shape rebars are not required.
3. # 4 rebar shall extend 12" past the construction joint at the completion of the day's pour.



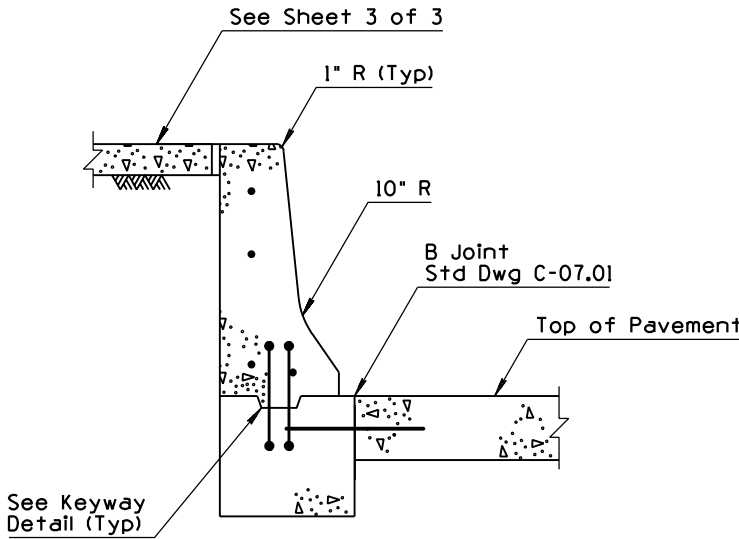
PLAN



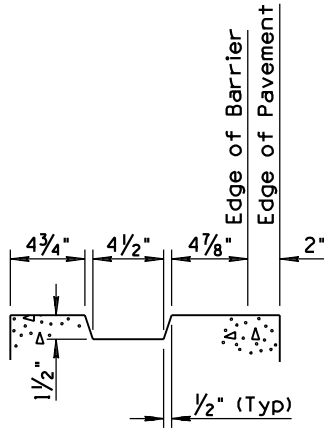
ELEVATION



WITH AC
SECTION A-A



WITH PCCP
SECTION A-A
SEE SECTION A-A (WITH AC)
FOR TYPICAL REBAR PLACEMENT

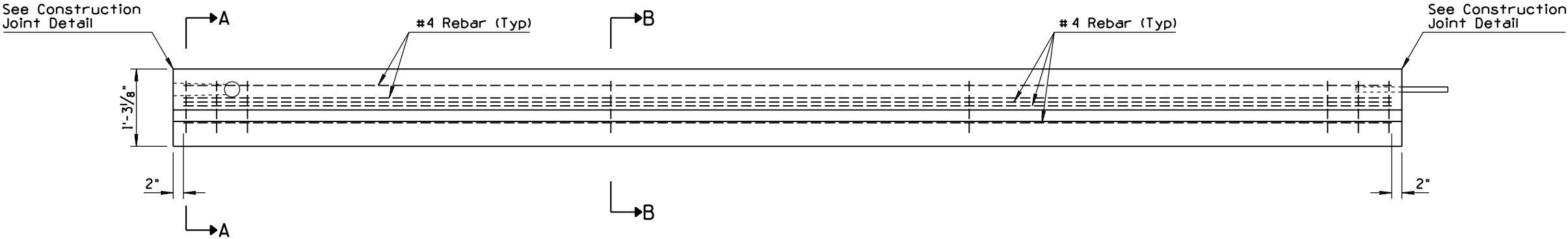


KEYWAY DETAIL
SEE SECTION A-A (WITH AC)
FOR TYPICAL REBAR PLACEMENT

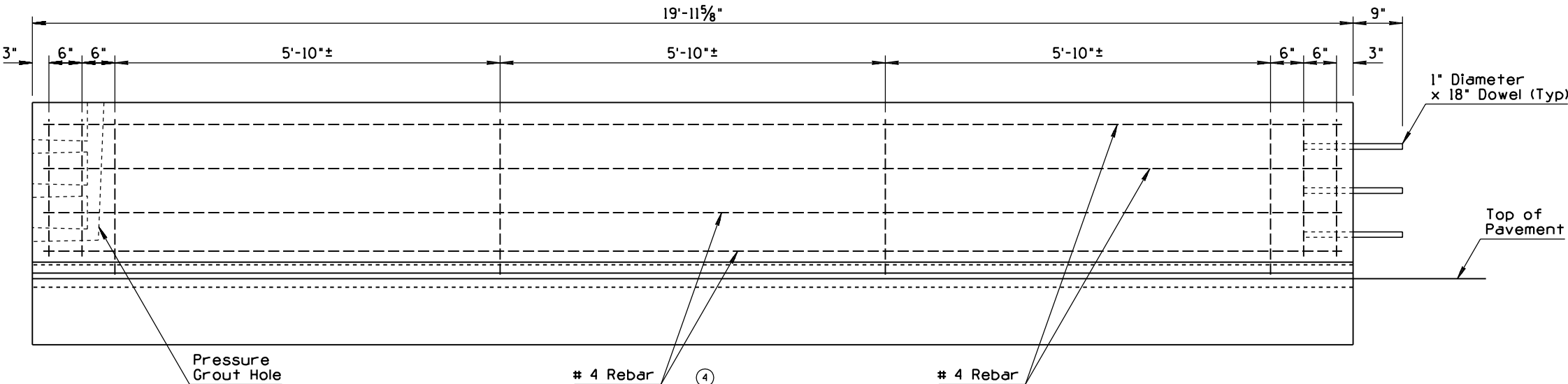
APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' AT PIERS CAST-IN-PLACE	DRAWING NO. C-10.54 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD FROM C-10.64, 2 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 1	RLF	9/04
3	DELETED ORIGINAL GENERAL NOTE 4	RLF	9/04
4	MODIFIED ELEVATION	RLF	9/04

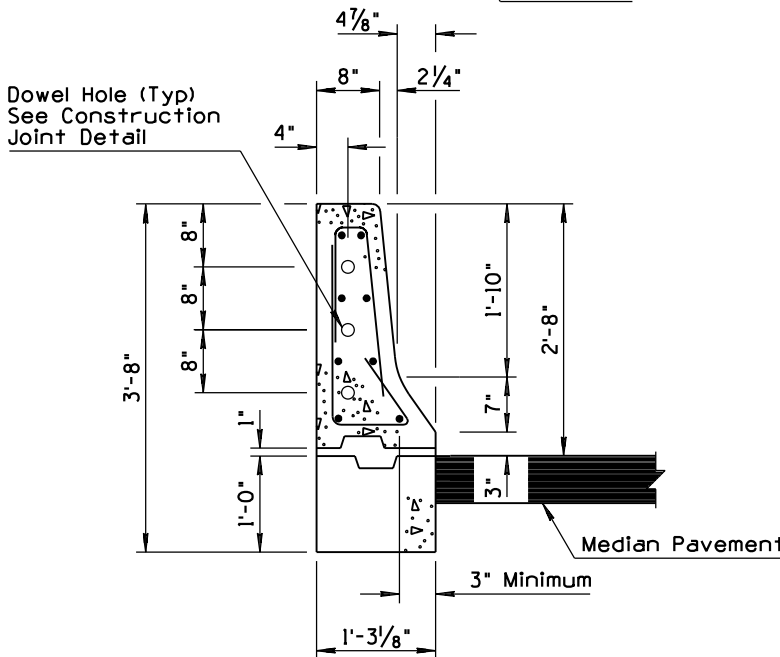
See Construction
Joint Detail



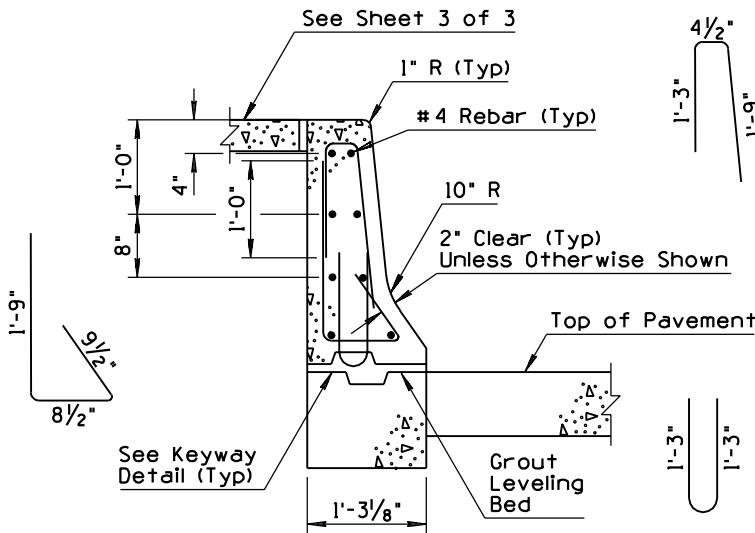
PLAN



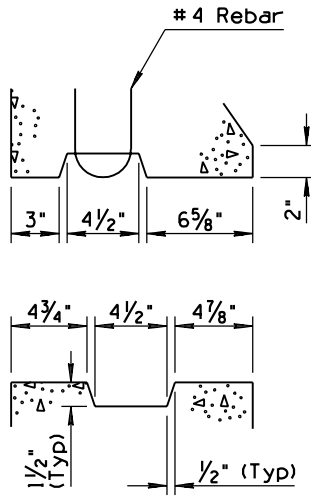
ELEVATION



WITH AC
SECTION A-A



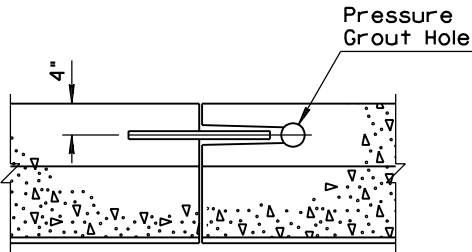
AT REBAR - WITH PCCP
SECTION B-B



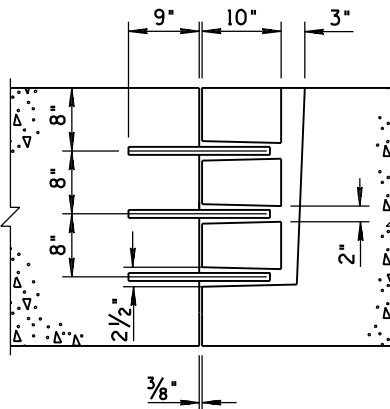
KEYWAY DETAIL

GENERAL NOTES

1. Concrete shall be Class S, $f'_c=4000$ PSI.
2. The Half Barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
3. Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
4. All bend dimensions for rebar are out-to-out of rebars.



PLAN



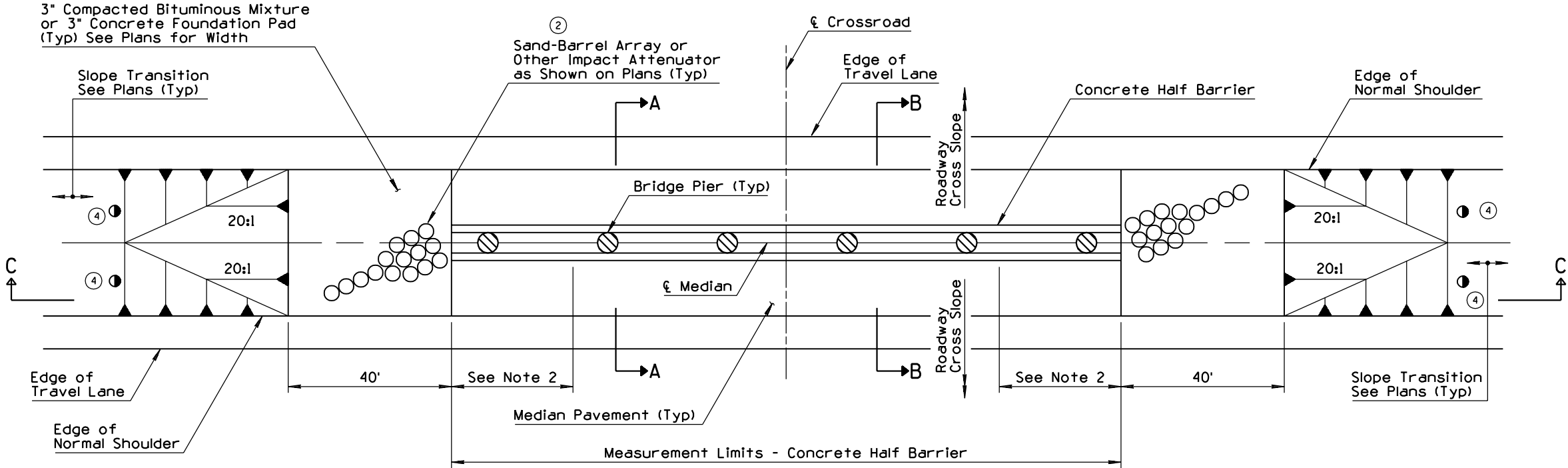
ELEVATION
CONSTRUCTION JOINT DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' AT PIERS PRECAST	DRAWING NO. C-10.54 Sheet 2 of 3

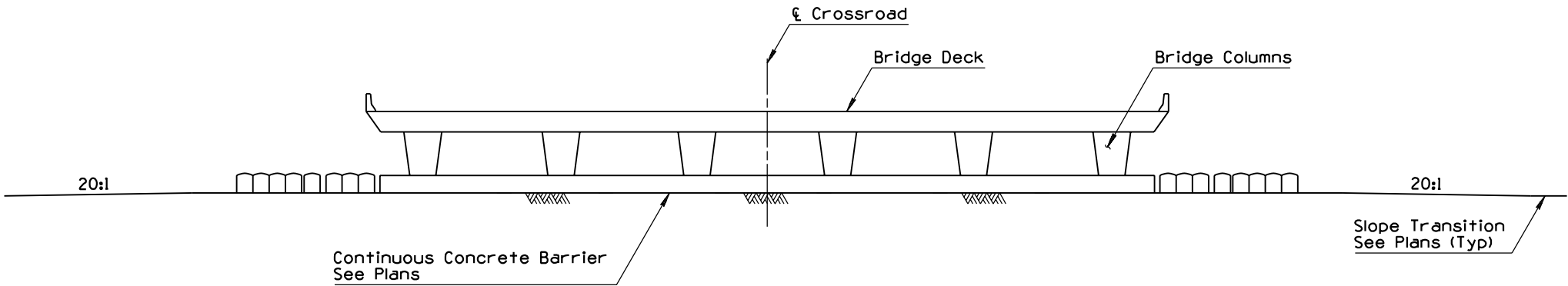
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2	REVISED SAND BARREL REFERENCE	RLF	9/04
3	ADDED GENERAL NOTE	RLF	9/04
4	MODIFIED SLOPE CALLOUT	RLF	9/04

GENERAL NOTES

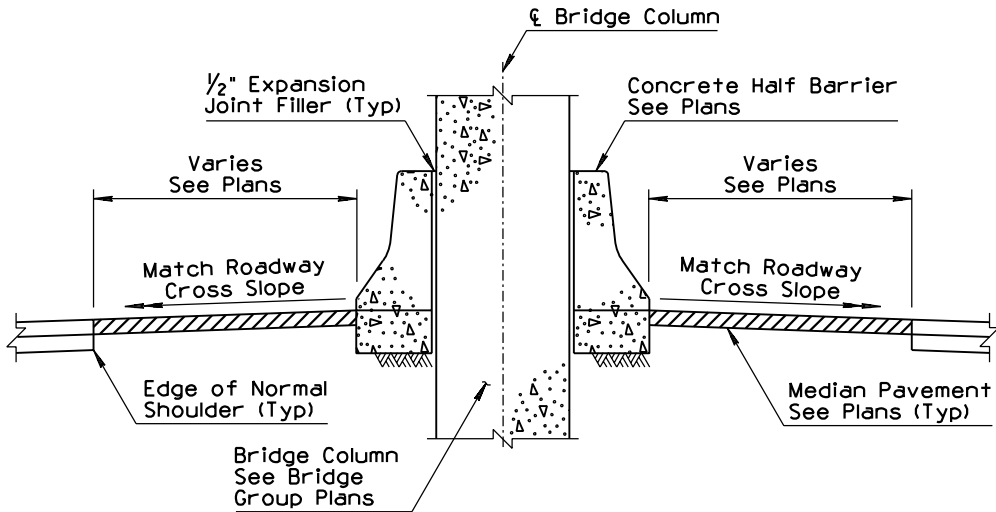
1. Transition median paving cross slope to meet level foundation pad. See plans for length and location.
2. Compacted backfill and Class B concrete shall be placed between bridge columns or piers only.
3. 1 Slope as shown on Plans



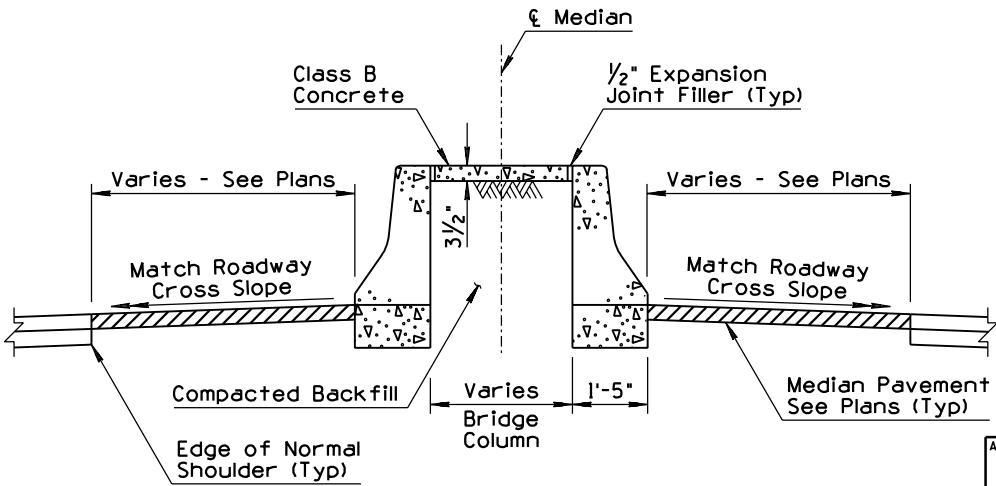
PLAN



SECTION C-C



SECTION A-A



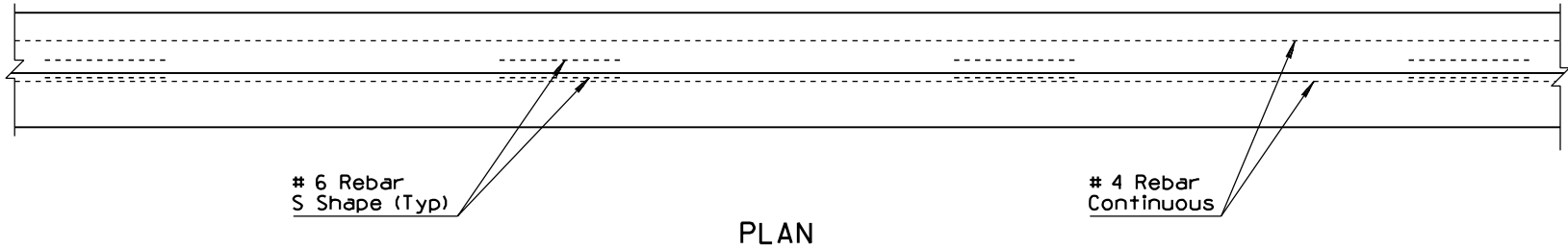
SECTION B-B

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia</i>	CONCRETE HALF BARRIER 32" TYPE 'F' AT PIERS LAYOUT	DRAWING NO. C-10.54 Sheet 3 of 3

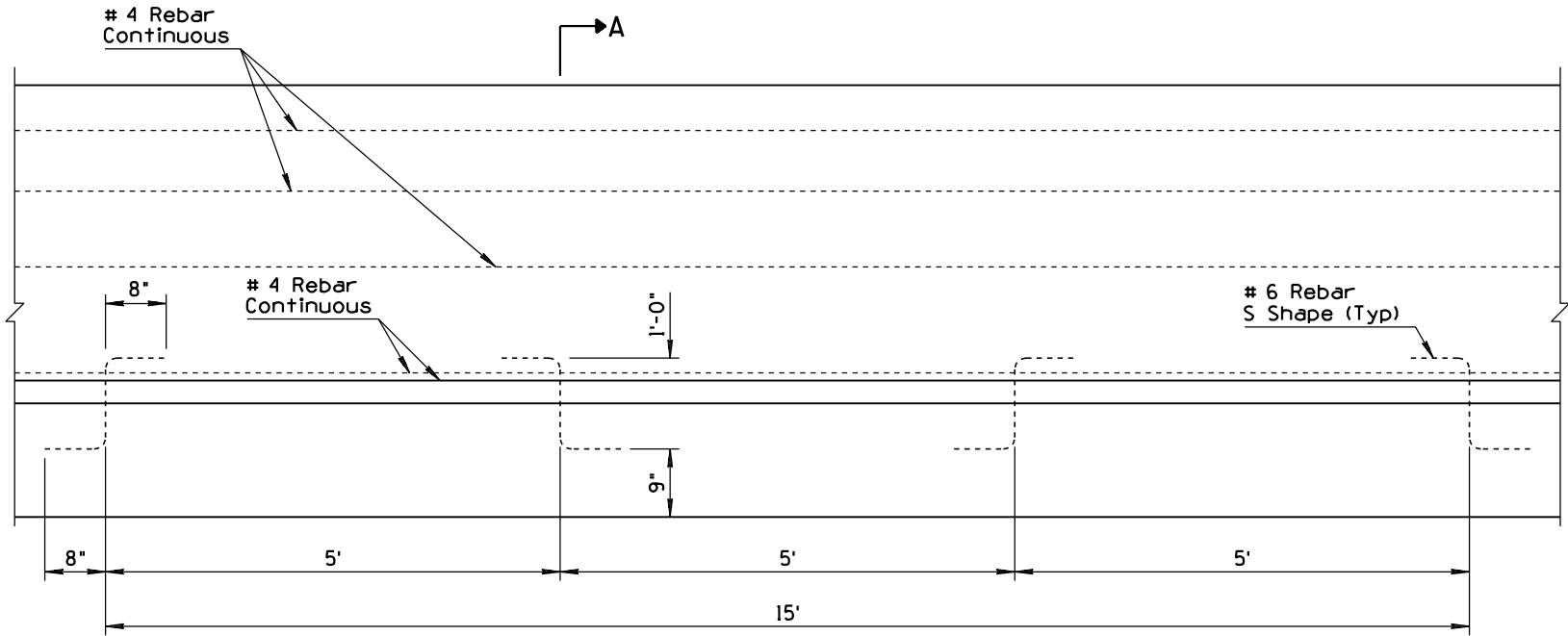
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-1064a, 1 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 1	RLF	9/04
3	RELOCATED ■ 4 REBAR	RLF	9/04
4			

GENERAL NOTES

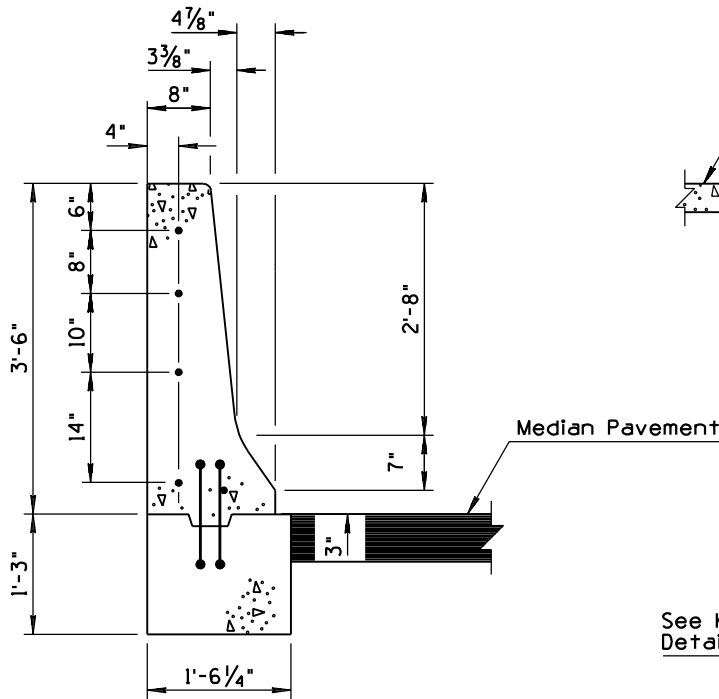
- ② 1. Concrete shall be Class S, $f'_c=4000$ PSI.
2. If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
3. Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
4. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.



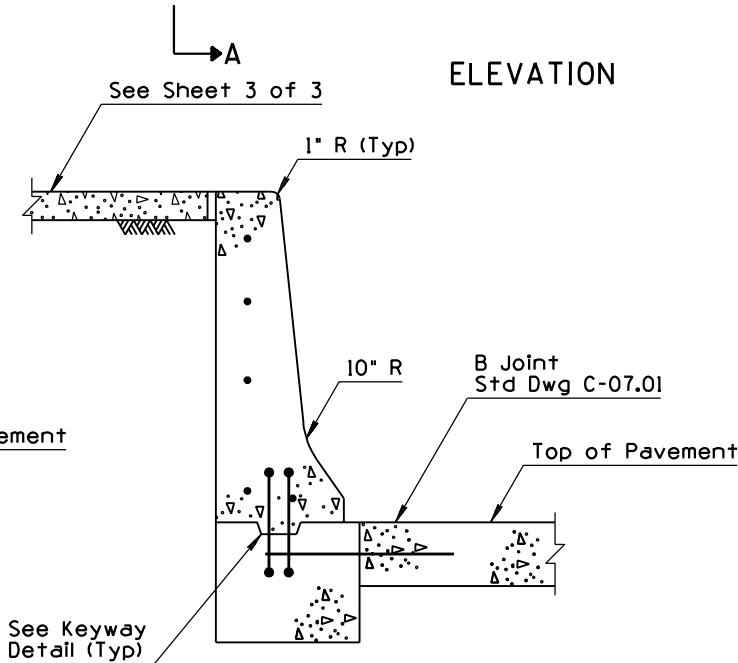
PLAN



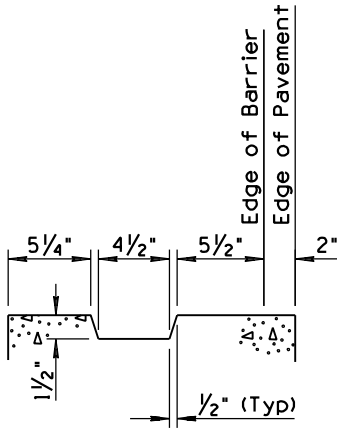
ELEVATION



WITH AC
SECTION A-A



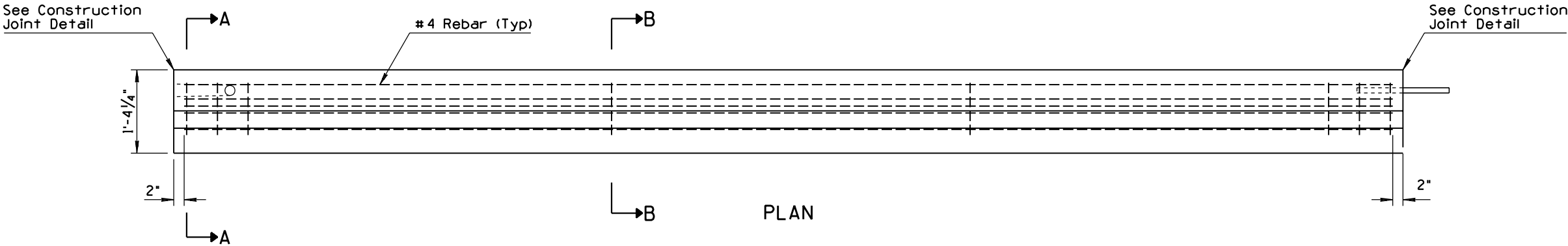
WITH PCCP
SECTION A-A
SEE SECTION A-A (WITH AC) FOR
TYPICAL REBAR PLACEMENT



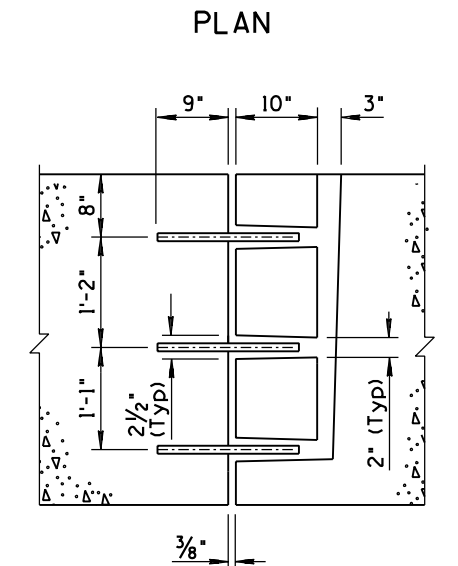
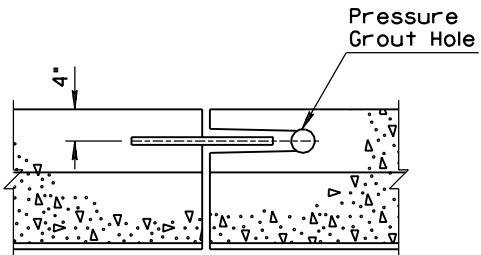
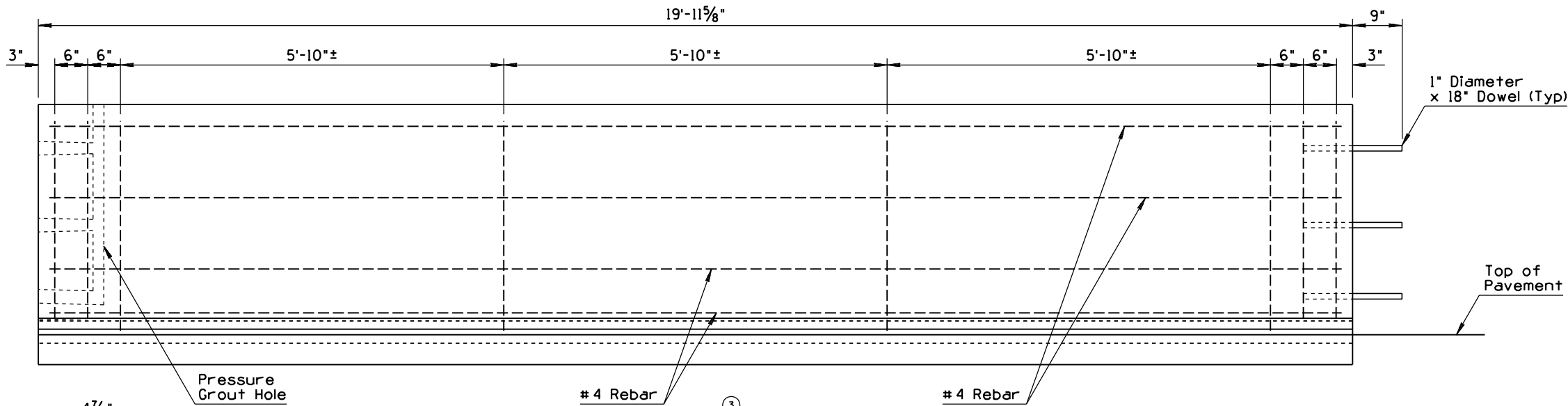
KEYWAY DETAIL
SEE SECTION A-A (WITH AC) FOR
TYPICAL REBAR PLACEMENT

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	CONCRETE HALF BARRIER 42" TYPE 'F' AT PIERS CAST-IN-PLACE	DRAWING NO. C-10.55 Sheet 1 of 3

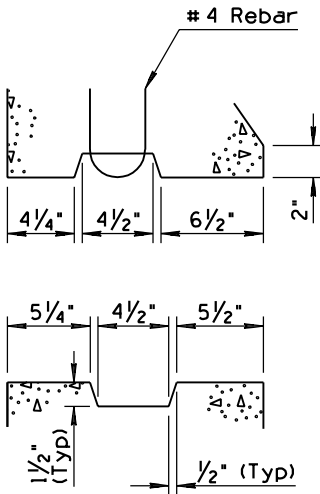
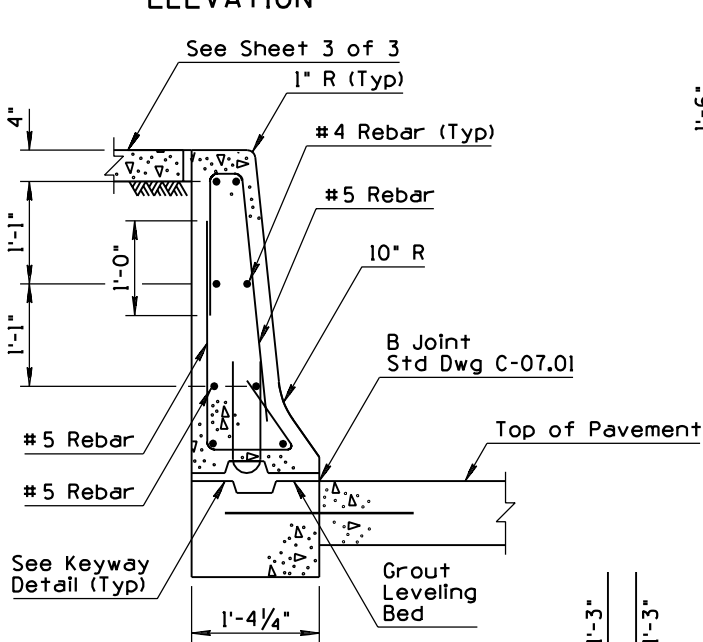
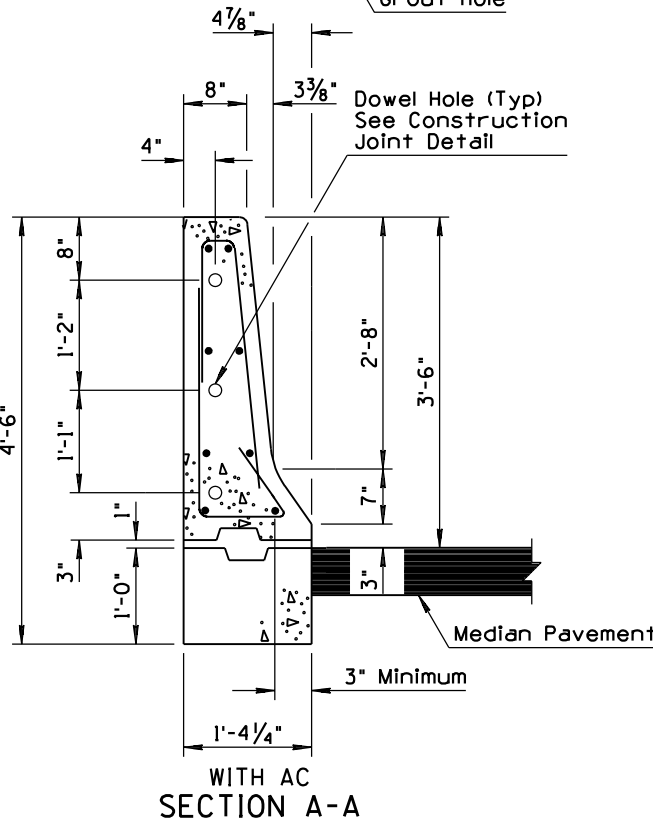
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-10642a, 2 OF 2 AND REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTES 1, 4 AND ADDED NOTE 5	RLF	9/04
3	MODIFIED ELEVATION	RLF	9/04
4			



- GENERAL NOTES
1. Concrete shall be Class S, $f'_c=4000$ PSI.
 2. The Half Barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
 3. Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
 4. All bend dimensions for rebar are out-to-out of bars.
 5. Rebar shall have 2" minimum clear cover unless otherwise noted.

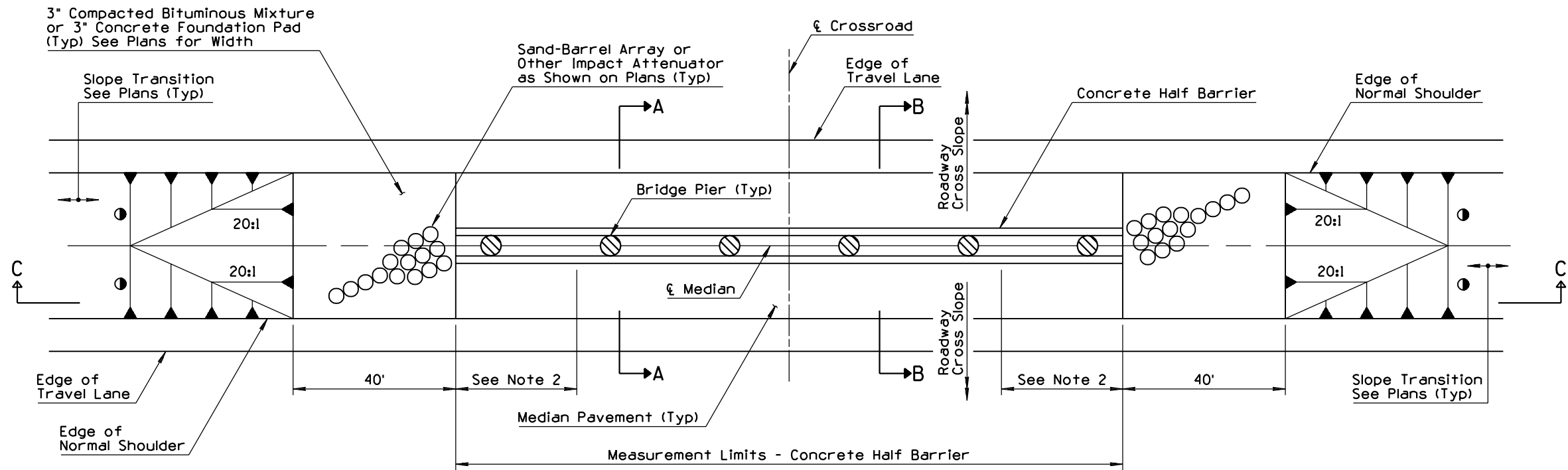


CONSTRUCTION JOINT DETAIL

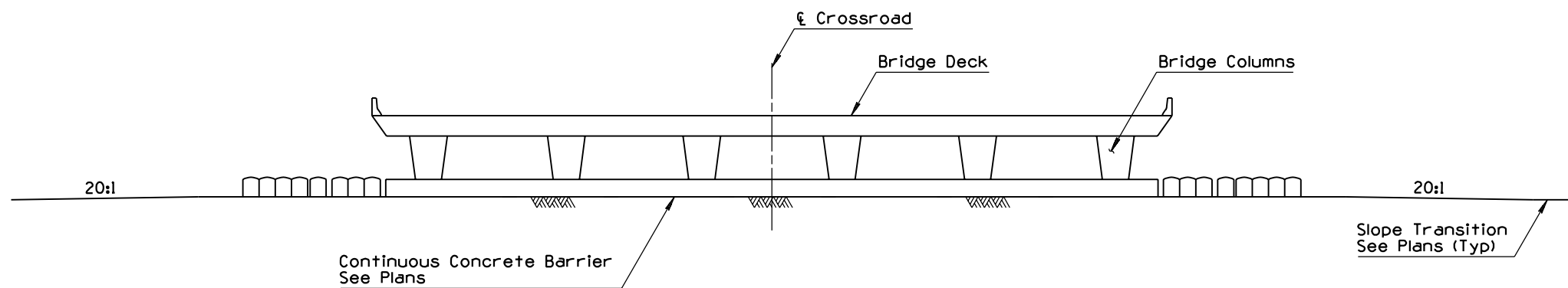


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 42" TYPE 'F' AT PIERS PRECAST	DRAWING NO. C-10.55 Sheet 2 of 3

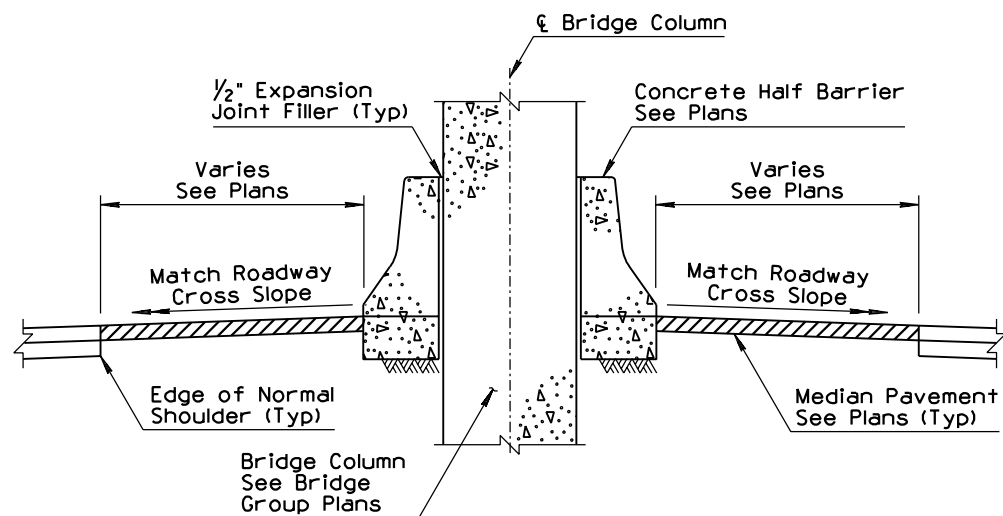
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2			
3			
4			



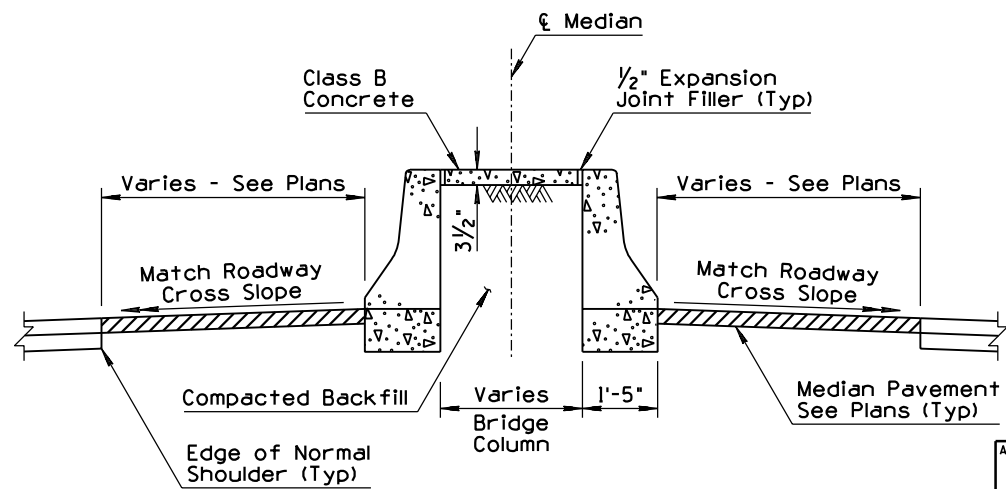
PLAN



SECTION C-C



SECTION A-A



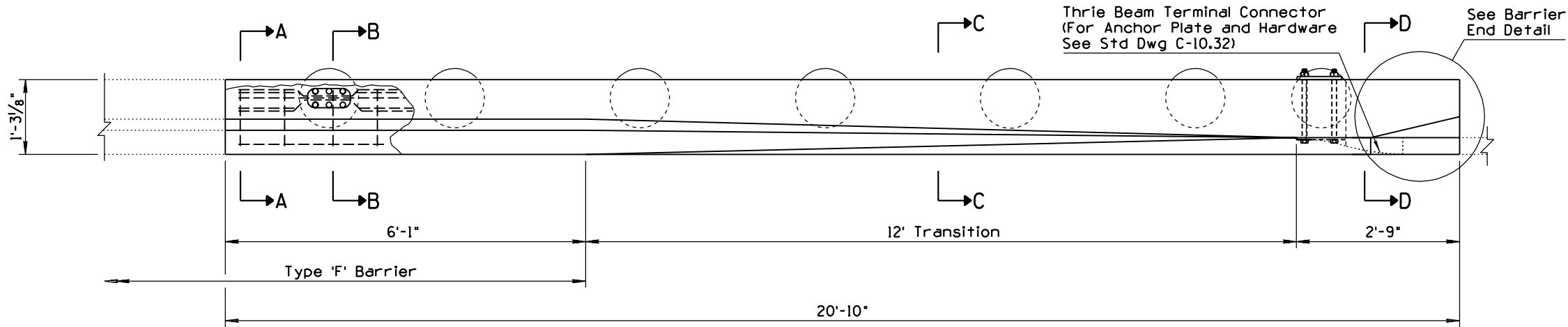
SECTION B-B

GENERAL NOTES

1. Transition median paving cross slope to meet level foundation pad. See plans for length and location.
 2. Compacted backfill and Class B concrete shall be placed between bridge columns or piers only.
- ① Slope as shown on Plans

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 42" TYPE 'F' AT PIERS LAYOUT	DRAWING NO. C-10.55 Sheet 3 of 3

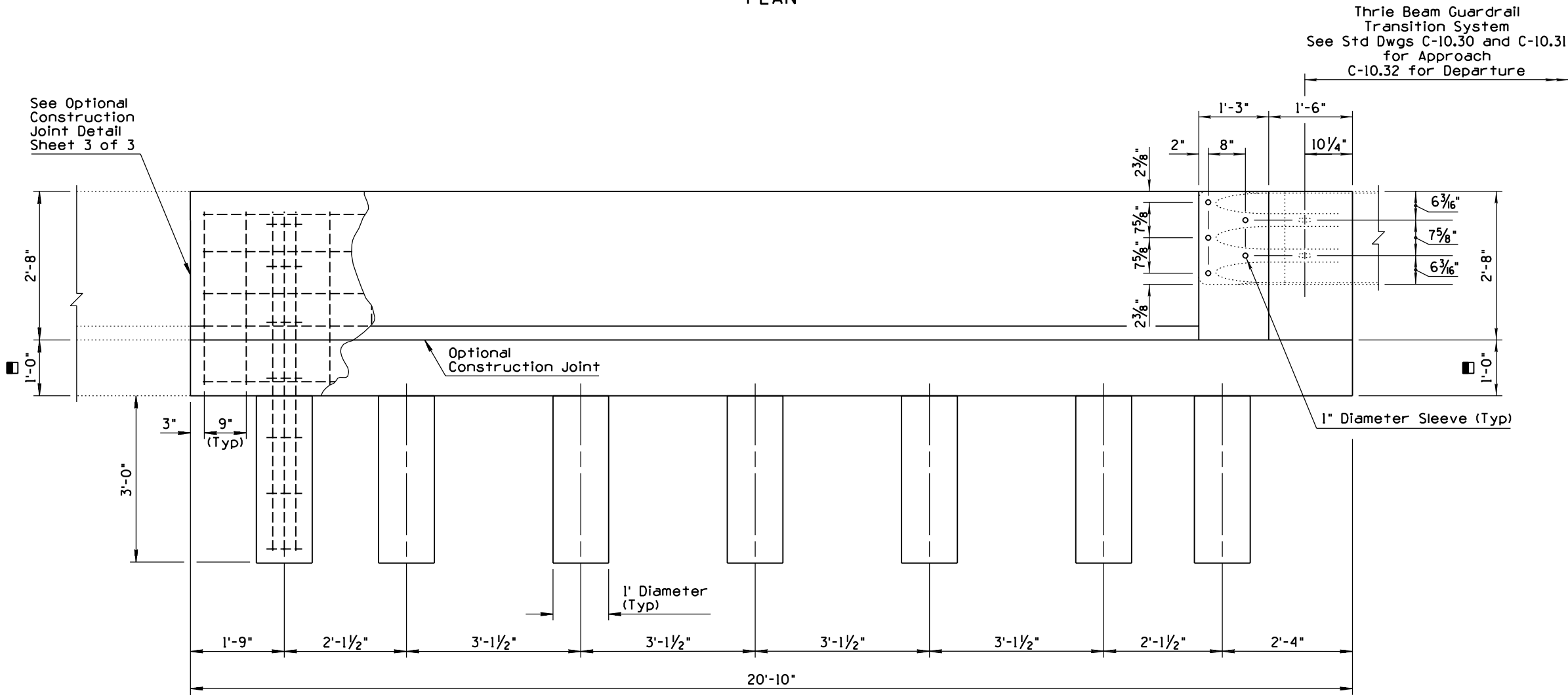
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



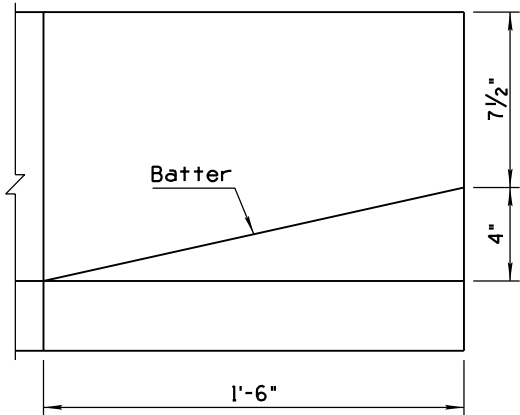
PLAN

GENERAL NOTES

- Concrete shall be Class S, $f'_c=4000$ PSI.
 - All rebar shall have 2" minimum clear cover unless otherwise noted.
 - All bend dimensions for rebar are out-to-out of rebars.
- 1'-0" Minimum or Match Thickness of Adjacent PCCP



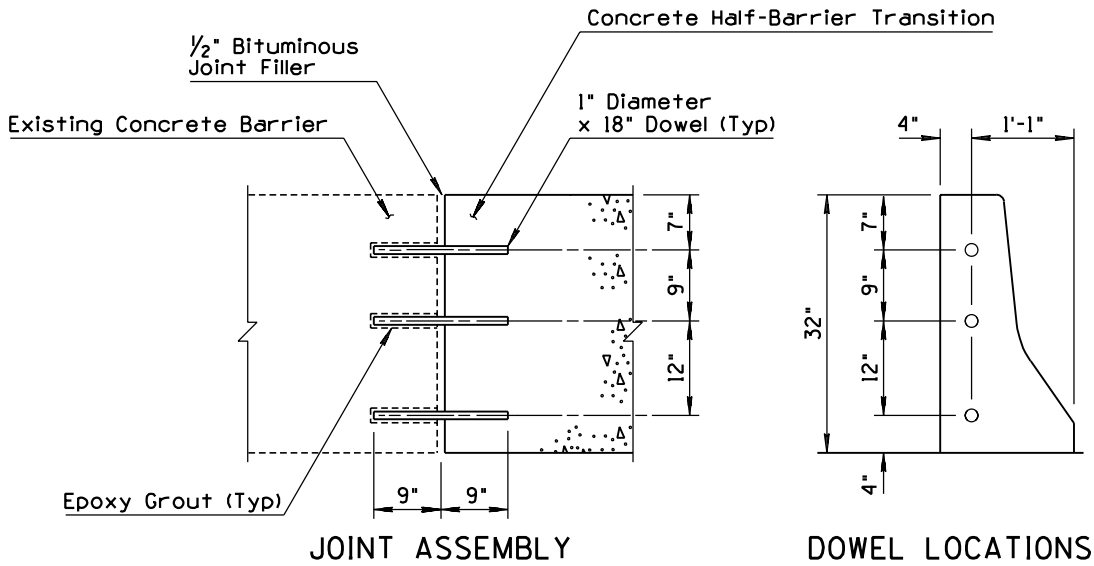
ELEVATION
BARRIER WITHOUT CURB



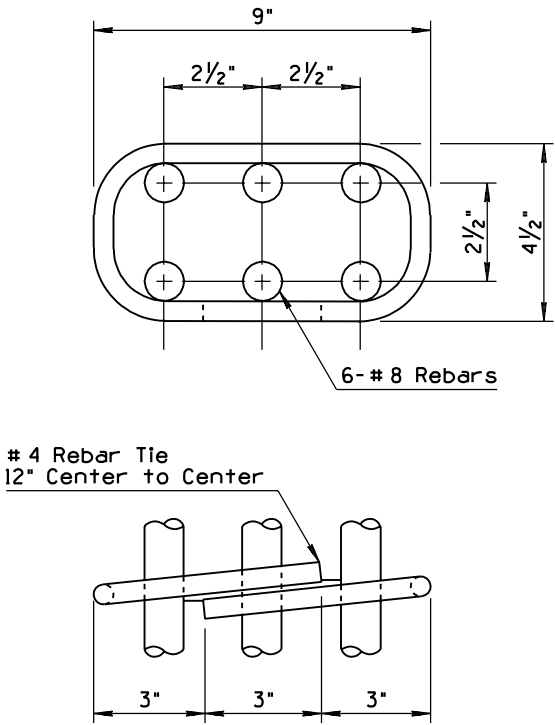
BARRIER END DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CAISSONS	DRAWING NO. ① C-10.70 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			
4			



CONSTRUCTION JOINT DETAIL
(OPTIONAL)

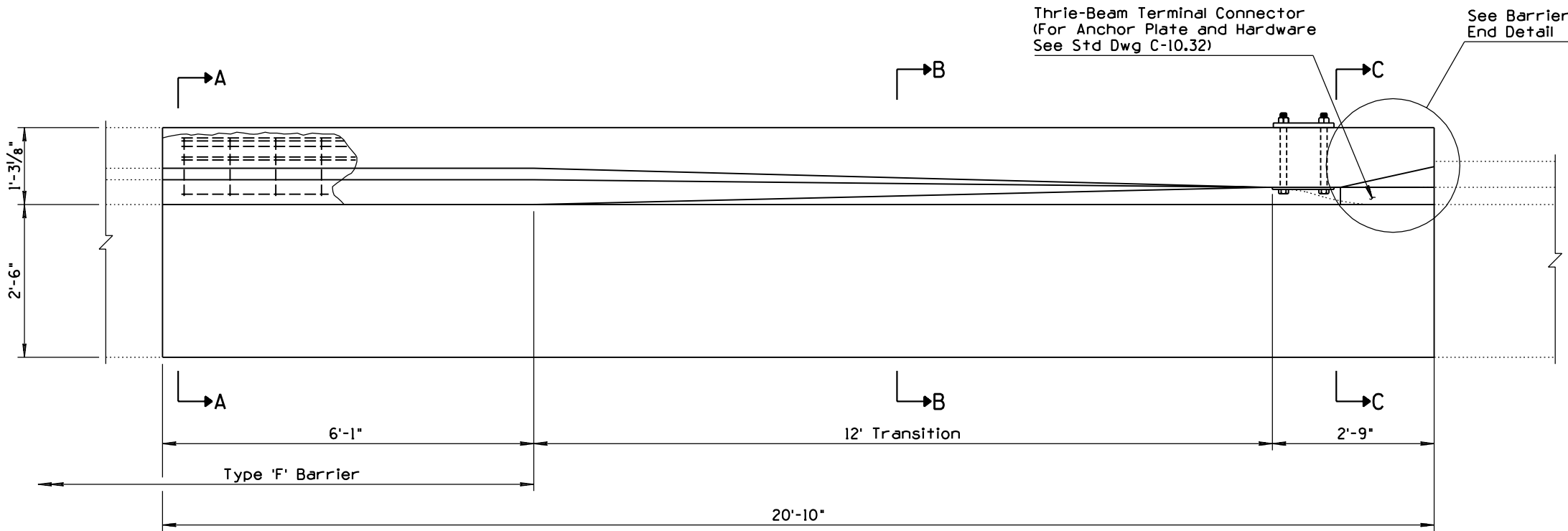


CAISSON REINFORCEMENT

2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CAISSONS ①	DRAWING NO. C-10.70 Sheet 3 of 3

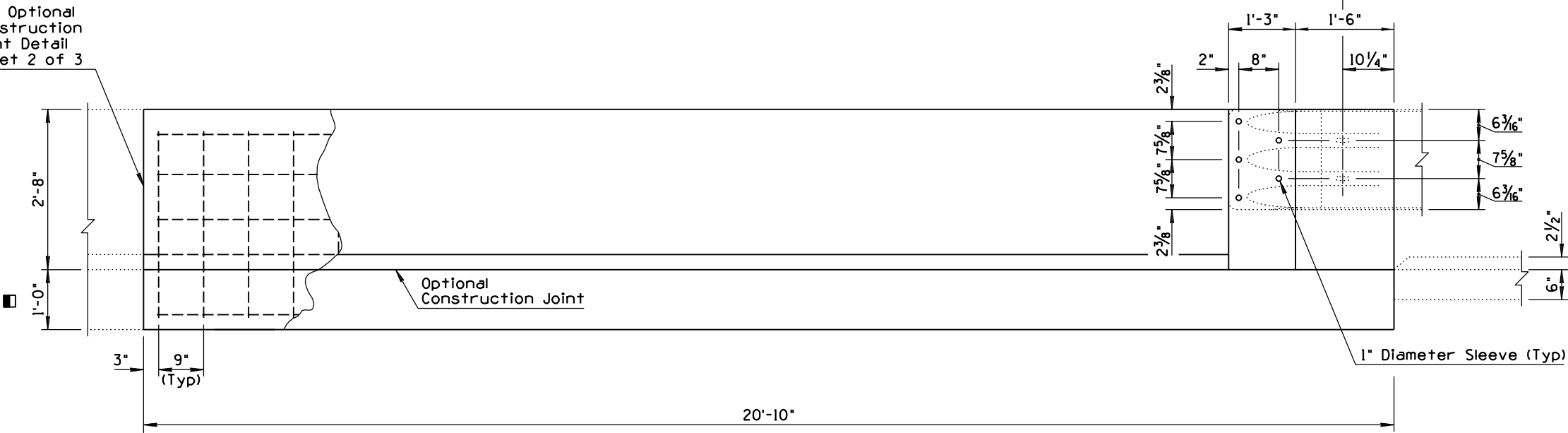
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



PLAN



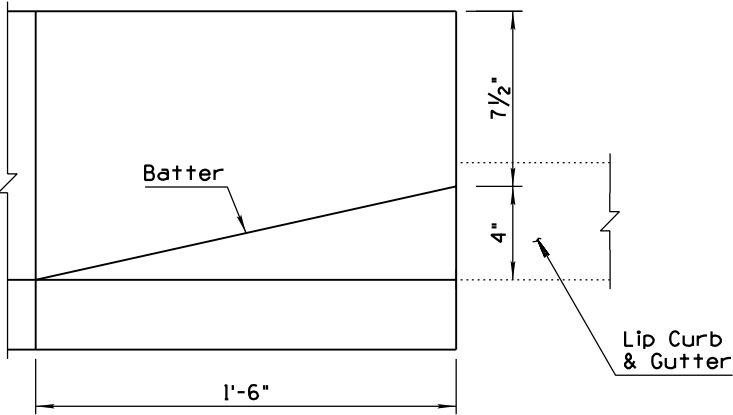
See Optional Construction Joint Detail Sheet 2 of 3



ELEVATION
BARRIER WITH CURB AND GUTTER

GENERAL NOTES

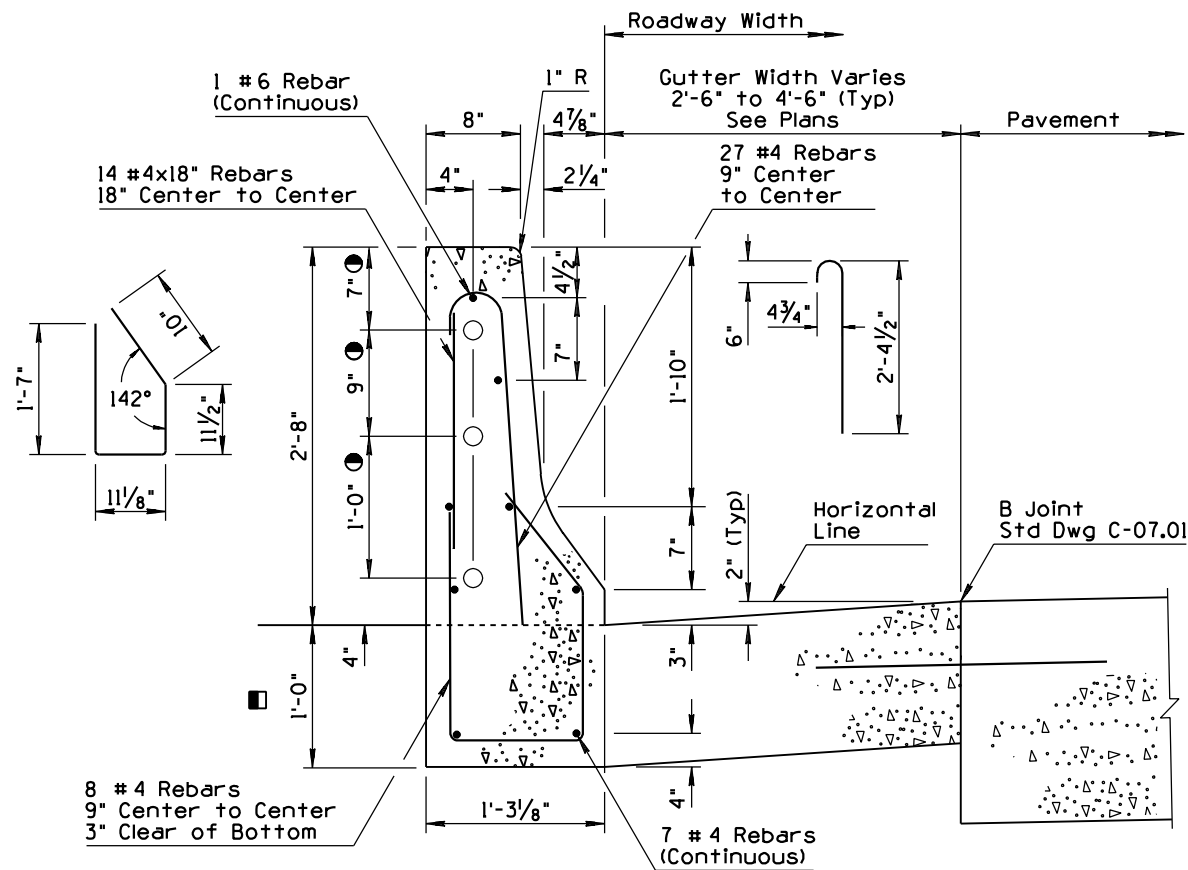
- Concrete shall be Class S, $f'_c=4000$ PSI.
 - All rebar shall have 2" minimum clear cover unless otherwise noted.
 - All bend dimensions for rebar are out-to-out of bars.
 - Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- 1'-0" Minimum or Match Thickness of Adjacent PCCP



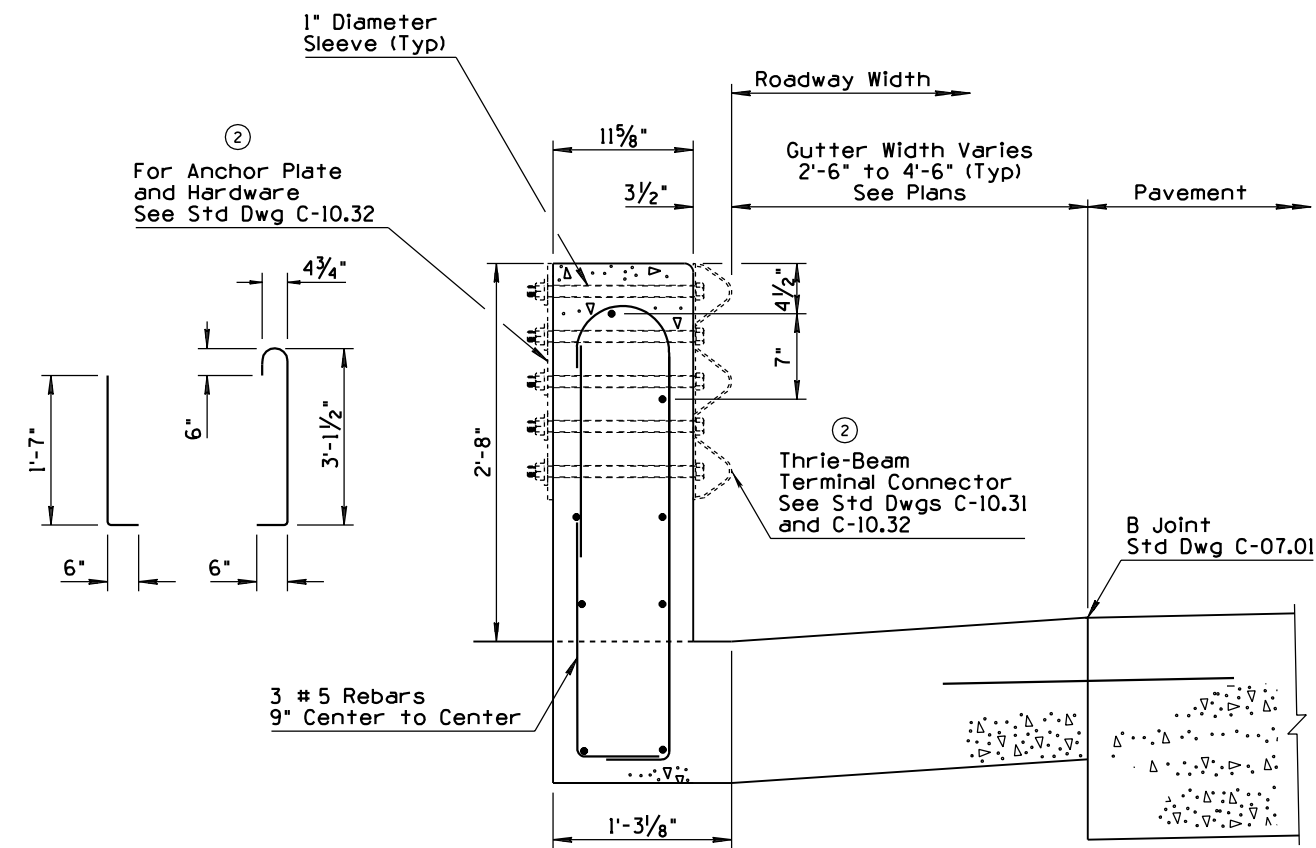
BARRIER END DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CURB & GUTTER	DRAWING NO. C-10.71 Sheet 1 of 2

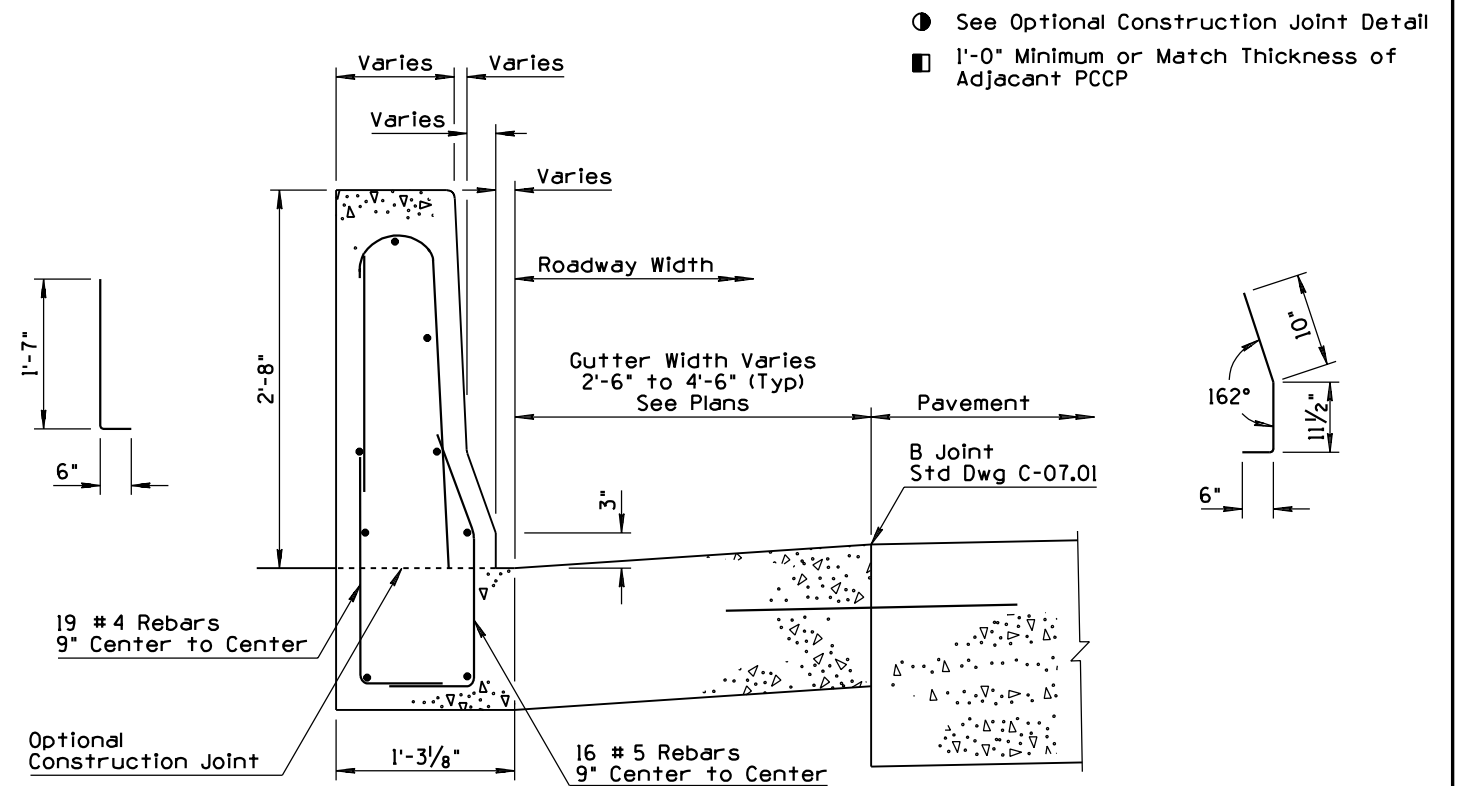
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2	ADDED REFERENCE	RLF	9/04
3	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
4			



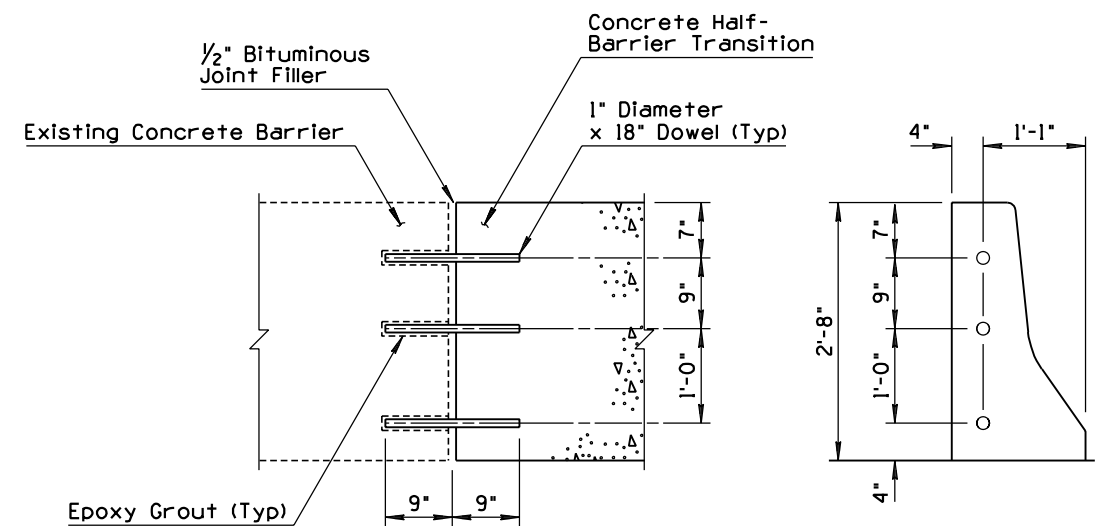
SECTION A-A



SECTION C-C



SECTION B-B



JOINT ASSEMBLY

DOWEL LOCATIONS

CONSTRUCTION JOINT DETAIL (OPTIONAL)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CURB & GUTTER	DRAWING NO. ① C-10.71 Sheet 2 of 2

GENERAL NOTES

- Concrete shall be Class S, $f'_c=4000$ PSI.
- All rebar shall have 2" minimum clear cover unless otherwise noted.
- All bend dimensions for rebar are out-to-out of rebars.

■ 1'-0" Minimum or Match Thickness of Adjacent PCCP

PLAN

Thrie-Beam Terminal Connector (For Anchor Plate and Hardware See Std Dwg C-10.32)

See Barrier End Detail

1'-4 1/4"

1'-3 1/8"

6'-1"

12' Transition

2'-9"

20'-10"

Type 'F' Barrier

ELEVATION BARRIER WITHOUT CURB

See Optional Construction Joint Detail Sheet 3 of 3

Optional Construction Joint

Thrie-Beam Guardrail Transition System See Std Dwg C-10.30 and C-10.31 for Approach C-10.32 for Departure

1'-3"

1'-6"

2"

8"

10 1/4"

2 3/8"

7 5/8"

7 5/8"

6 3/16"

7 5/8"

6 3/16"

2'-8"

1'-0"

1" Diameter Sleeve (Typ)

3'-6"

1'-0"

3'-0"

3"

9" (Typ)

12" Diameter (Typ)

1'-9"

2'-1 1/2"

3'-1 1/2"

3'-1 1/2"

3'-1 1/2"

3'-1 1/2"

3'-1 1/2"

2'-1 1/2"

2'-4"

20'-10"

BARRIER END DETAIL

Batter

7 1/2"

4"

1'-6"

APPROVED FOR DESIGN <i>May Vipanua</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS	DRAWING NO. ① C-10.72 Sheet 1 of 3

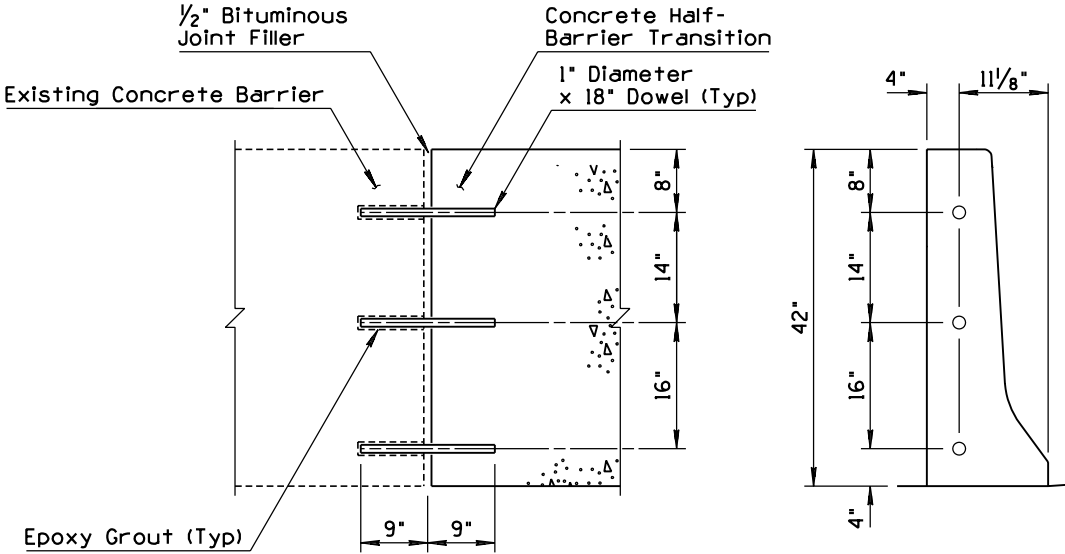
1. Concrete shall be Class S, $f_c=4000$ PSI.
2. All rebar shall have 2" minimum clear cover unless otherwise noted.
3. All bend dimensions for rebar are out-to-out of rebars.

■ 1'-0" Minimum or Match Thickness of Adjacent PCCP

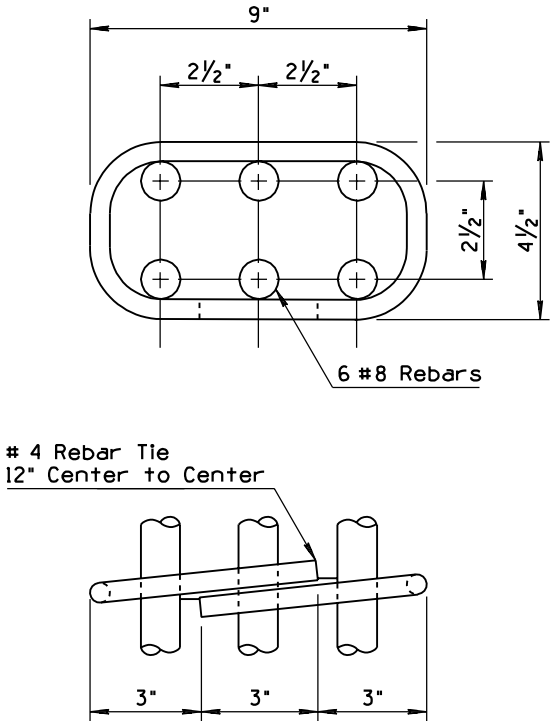


APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS	DRAWING NO. (1) C-10.72 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			
4			



JOINT ASSEMBLY
CONSTRUCTION JOINT DETAIL
(OPTIONAL)
DOWEL LOCATIONS

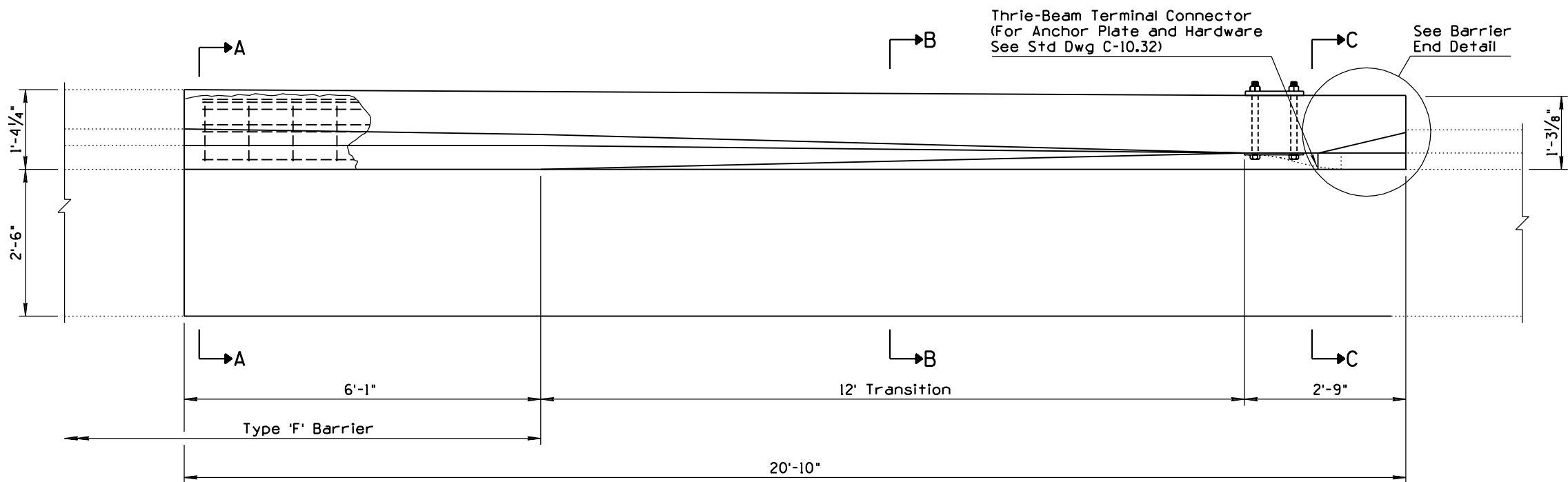


CAISSON REINFORCEMENT

2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS ①	DRAWING NO. C-10.72 Sheet 3 of 3

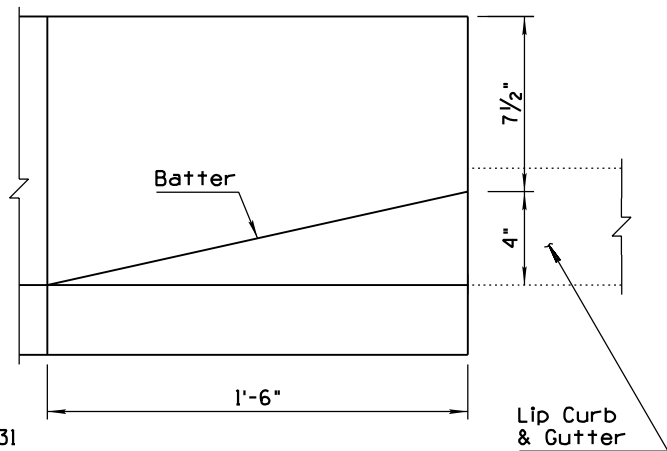
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



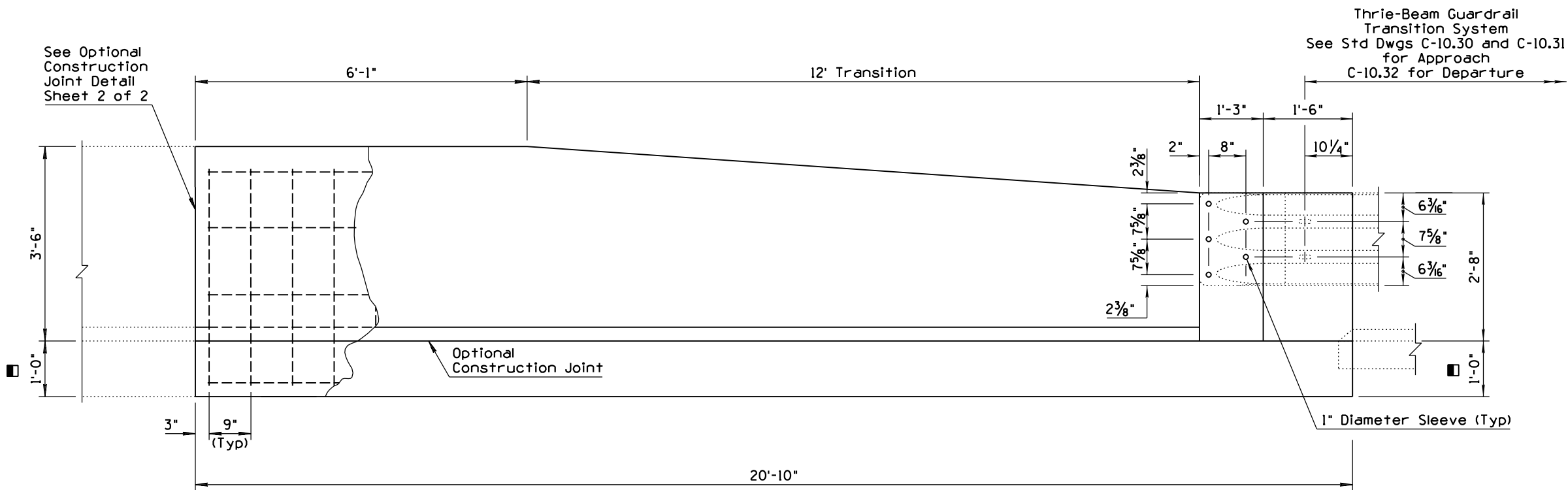
PLAN

GENERAL NOTES

1. Concrete shall be Class S, $f'_c=4000$ PSI.
 2. All rebar shall have 2" minimum clear cover unless otherwise noted.
 3. All bend dimensions for rebar are out-to-out of rebars.
 4. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- 1'-0" Minimum or Match Thickness of Adjacent PCCP



BARRIER END DETAIL

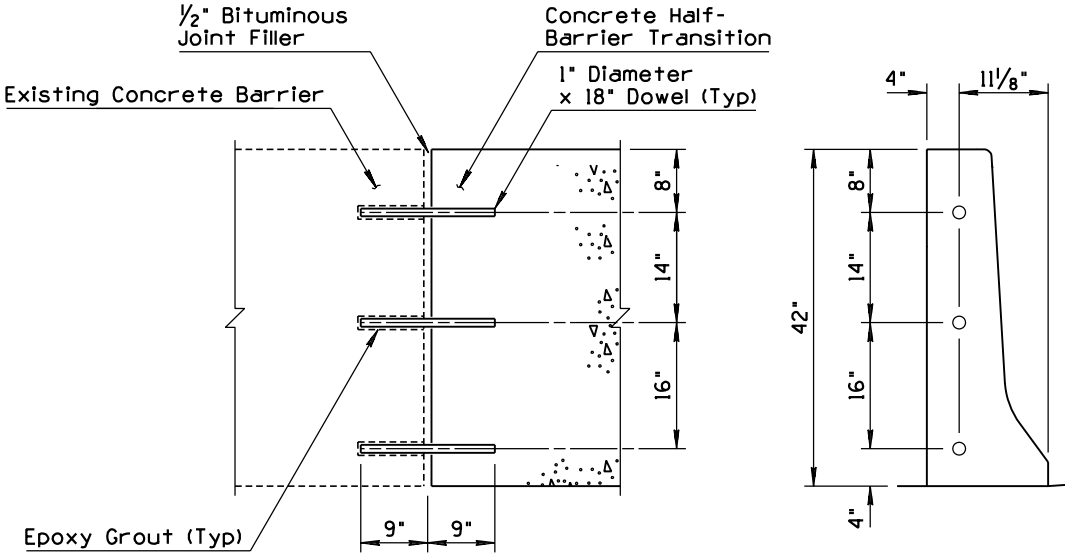


ELEVATION

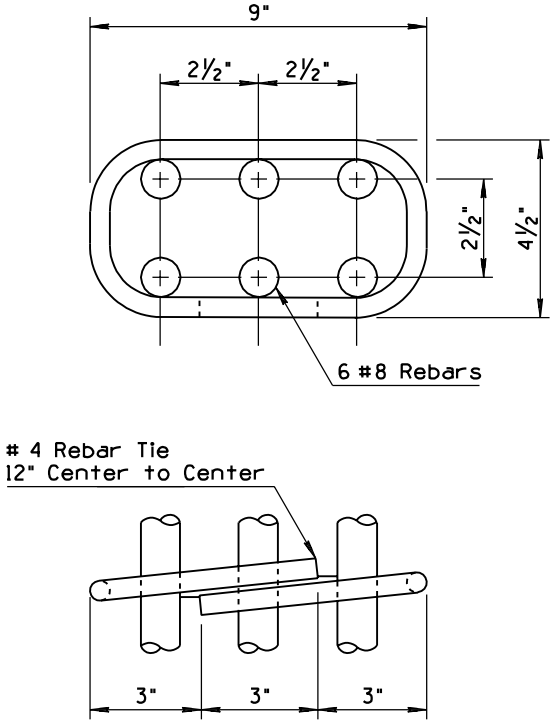
BARRIER WITH CURB AND GUTTER

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH GUTTER	DRAWING NO. C-10.73 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			
4			



JOINT ASSEMBLY
CONSTRUCTION JOINT DETAIL
(OPTIONAL)
DOWEL LOCATIONS

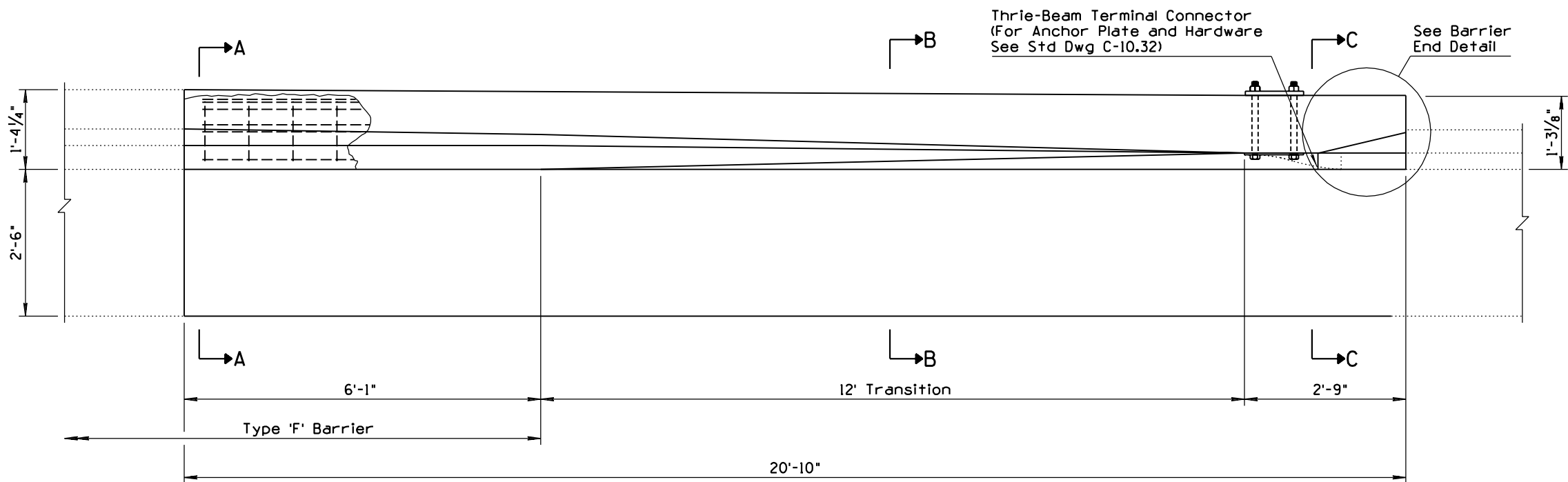


CAISSON REINFORCEMENT

2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS ①	DRAWING NO. C-10.72 Sheet 3 of 3

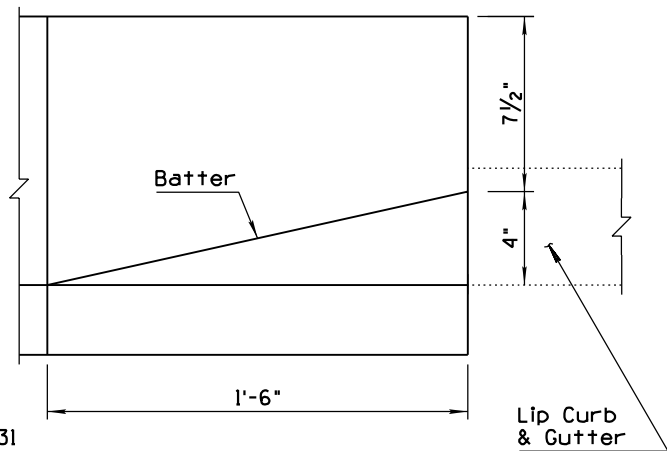
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



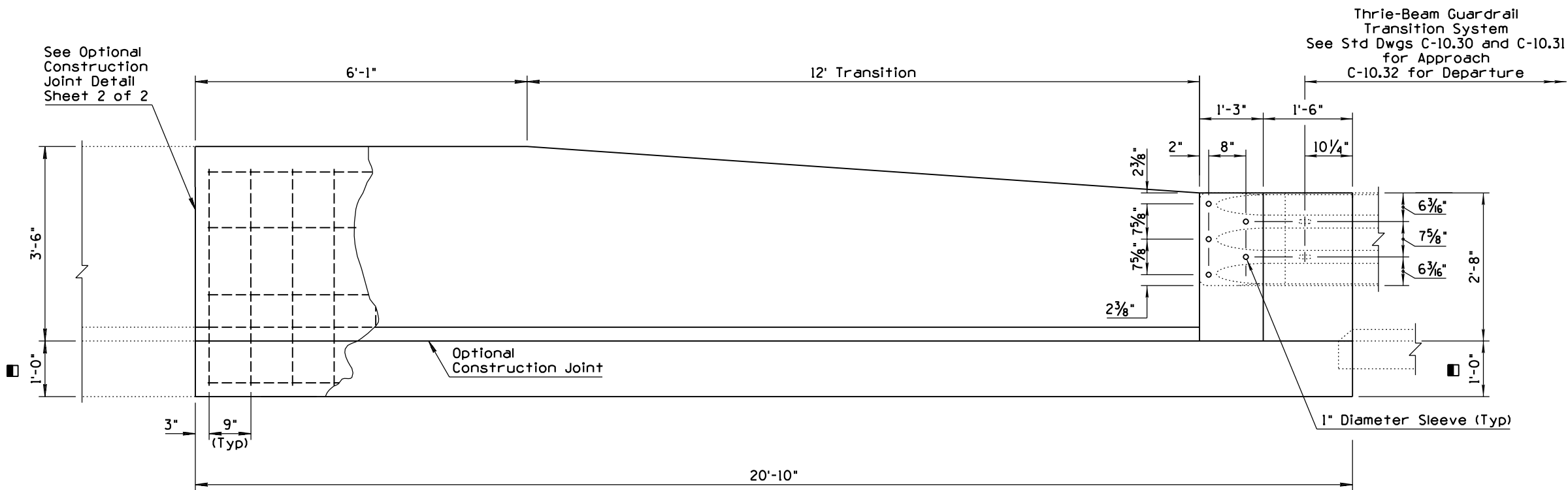
PLAN

GENERAL NOTES

1. Concrete shall be Class S, $f'_c=4000$ PSI.
 2. All rebar shall have 2" minimum clear cover unless otherwise noted.
 3. All bend dimensions for rebar are out-to-out of rebars.
 4. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- 1'-0" Minimum or Match Thickness of Adjacent PCCP



BARRIER END DETAIL



ELEVATION

BARRIER WITH CURB AND GUTTER

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH GUTTER	DRAWING NO. C-10.73 Sheet 1 of 2

SECTION A-A

1" R Roadway Width

Gutter Width Varies 2'-6" to 4'-6" (Typ) See Plans

Pavement

1 # 6 Rebar (Continuous)

14 # 4x18" Rebars 18" Center to Center

27 # 4 Rebars 9" Center to Center

8" 4" 3 3/8" 4 7/8" 5 1/2" 1'-0" 2'-8" 6" 3'-1 1/2" 7" 2" (Typ) Horizontal Line B Joint Std Dwg C-07.01

1'-7" 1'-2" 1'-4" 3'-6" 1'-0" 4" 1'-4 1/4" 4" 8 # 4 Rebars 9" Center to Center 3" Clear of Bottom 8 # 4 Rebars (Continuous)

SECTION B-B

Varies Varies Varies Varies Varies Varies

Gutter Width Varies 2'-6" to 4'-6" (Typ) See Plans

Pavement

1'-7" 6" 1'-0" 19 # 4 Rebars 9" Center to Center Optional Construction Joint (Typ) 16 # 5 Rebars 9" Center to Center 7" 3" B Joint Std Dwg C-07.01

SECTION C-C

1" Diameter Sleeve (Typ)

Roadway Width

Gutter Width Varies 2'-6" to 4'-6" (Typ) See Plans

Pavement

11 5/8" 3 1/2" 4 1/2" 7" 2'-8" 1'-3 1/8" 3 # 5 Rebars 9" Center to Center B Joint Std Dwg C-07.01

② For Anchor Plate and Hardware See Std Dwg C-10.32

② Thrie-Beam Terminal Connector See Std Dwg C-10.31 and C-10.32

JOINT ASSEMBLY

1/2" Bituminous Joint Filler

Existing Concrete Barrier

Concrete Half-Barrier Transition

1" Diameter x 18" Dowel (Typ)

Epoxy Grout (Typ)

9" 9" 8" 1'-2" 1'-4" 3'-6" 4" 11 1/8" 4" 1'-2" 1'-4"

DOWEL LOCATIONS

CONSTRUCTION JOINT DETAIL (OPTIONAL)

APPROVED FOR DESIGN *May Vipanua*

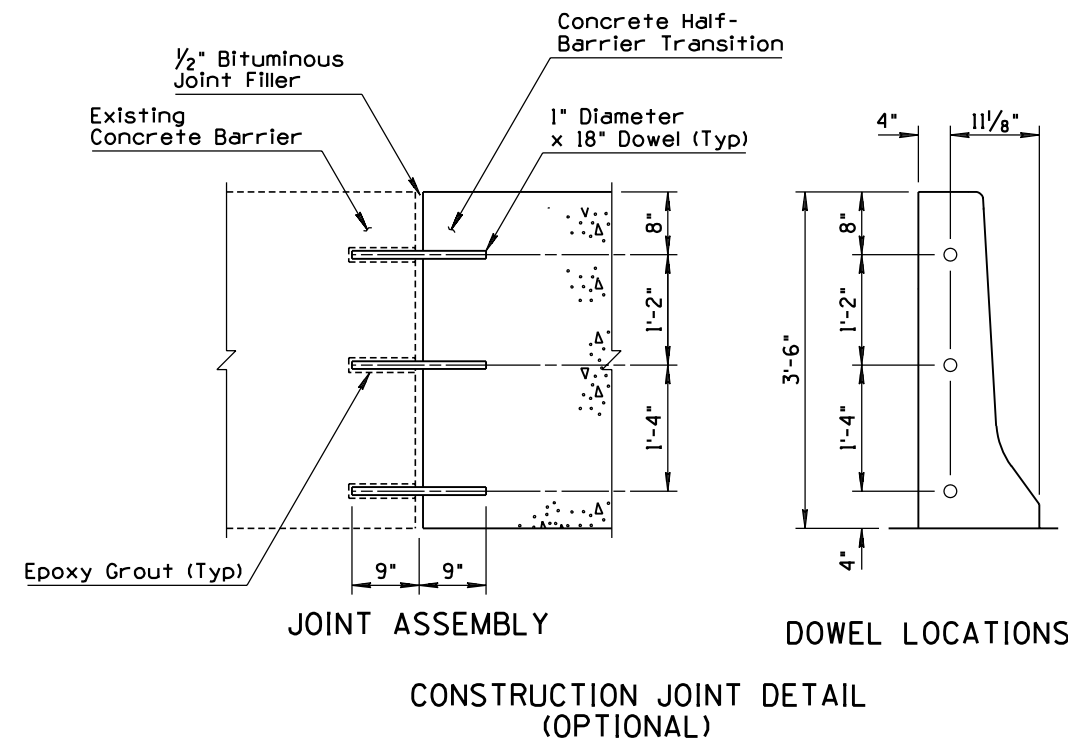
APPROVED FOR DISTRIBUTION *John [Signature]*

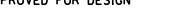

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
ROADWAY STANDARD DRAWINGS

CONCRETE HALF-BARRIER TRANSITION
TO VERTICAL
42" TO 32" TYPE 'F' WITH GUTTER ①

REV. 9/04

DRAWING NO. C-10.73
Sheet 2 of 2



APPROVED FOR DESIGN 	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION 	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH GUTTER ①	DRAWING NO. C-10.73 Sheet 2 of 2

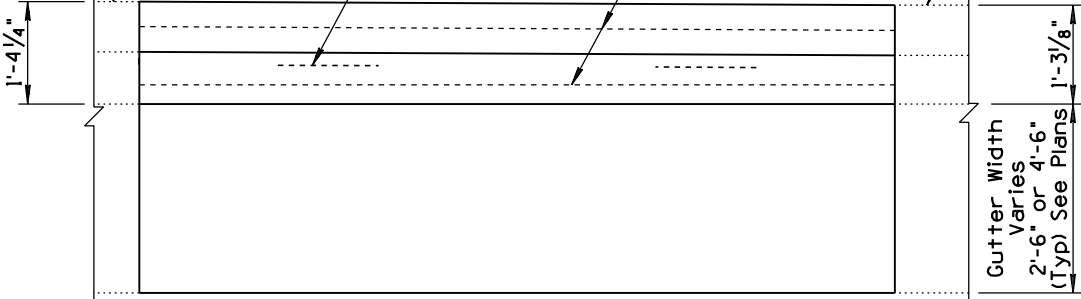
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2	REVISED GENERAL NOTE 2	RLF	9/04
3	REVISED SECTION A-A	RLF	9/04
4			

Concrete Half Barrier
42" Type 'F' with Gutter
Std Dwg C-10.53 or
as Shown on Plans

6 Rebar
S Shape (Typ)

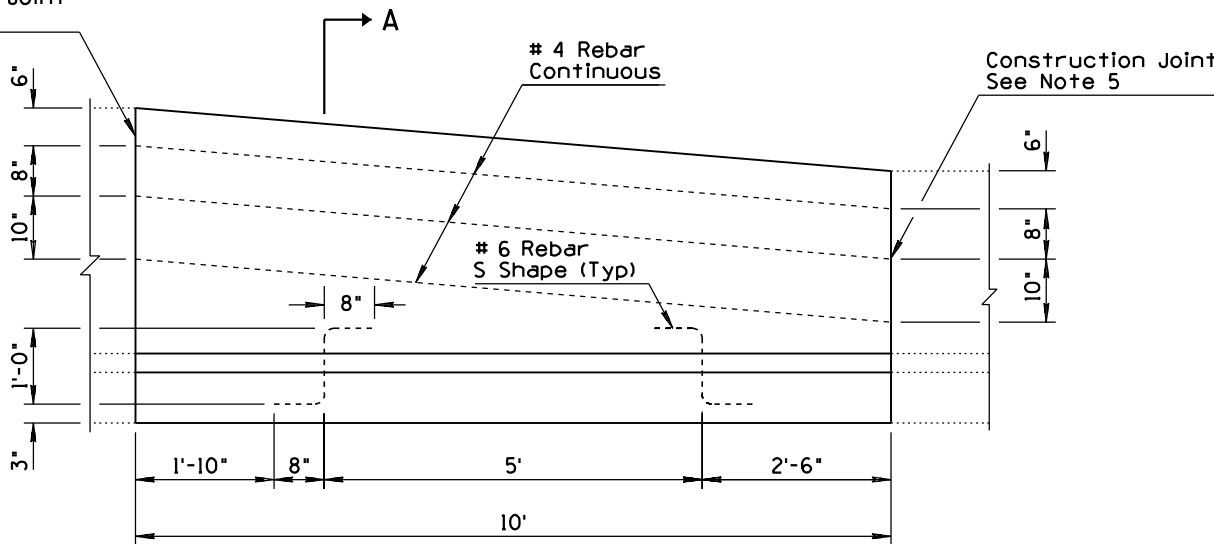
4 Rebar
Continuous

Concrete Half Barrier
32" Type 'F' with Gutter
Std Dwg C-10.52 or
as Shown on Plans

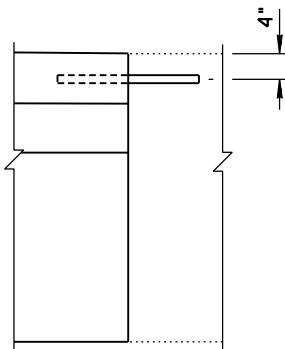


PLAN

Construction Joint
See Note 5

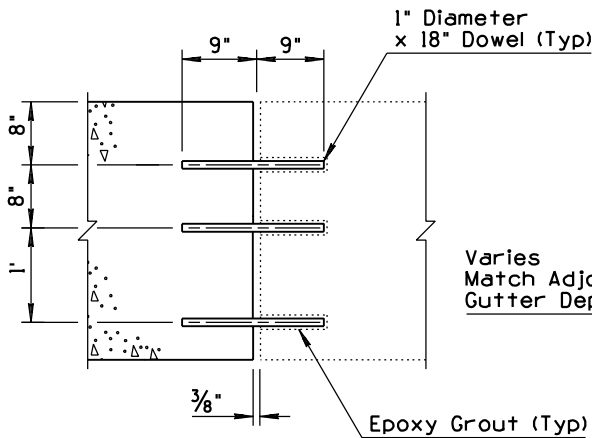


ELEVATION



PLAN

CONSTRUCTION JOINT DETAIL
(OPTIONAL)



ELEVATION

Varies
Match Adjoining
Gutter Depression

Gutter Width Varies
2'-6" or 4'-6" (Typ)
See Plans

Horizontal Line

Varies

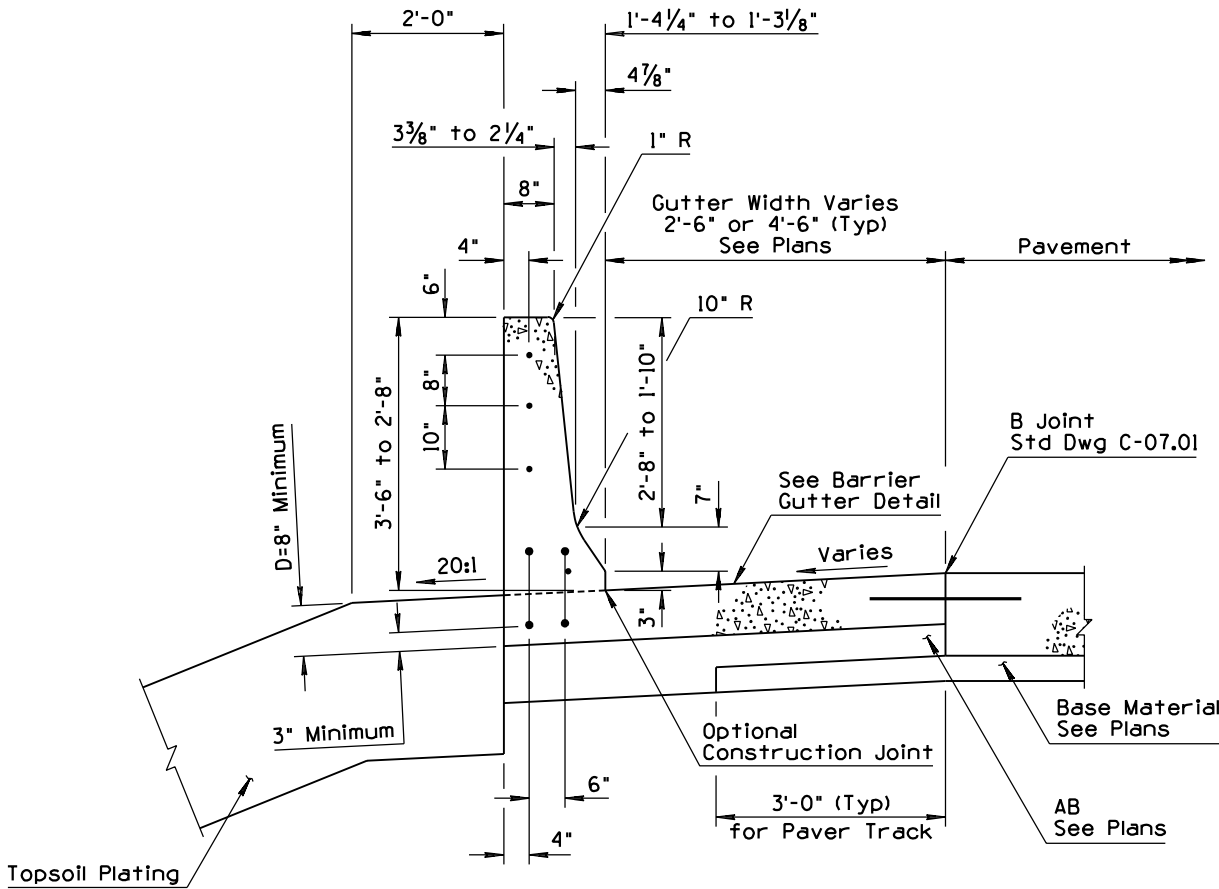
B Joint
Std Dwg C-07.01

PCCP
See Plans

BARRIER GUTTER DETAIL

GENERAL NOTES

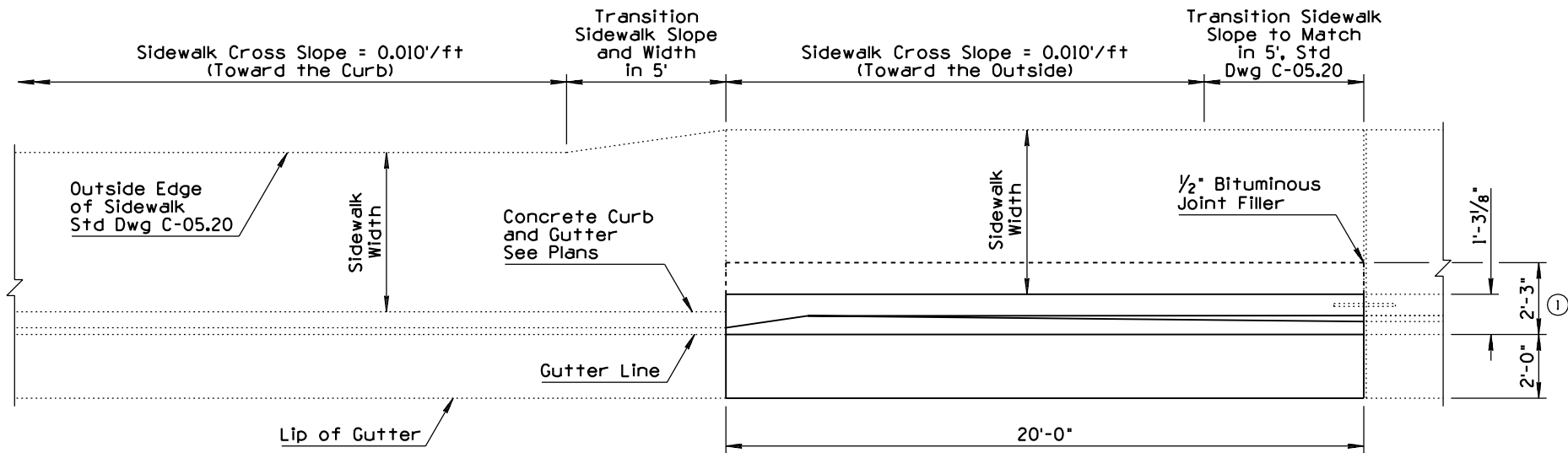
1. Half-Barrier Transition shall be constructed by the formed cast-in-place method.
2. Concrete shall be Class S, $f'_c=4000$ PSI.
3. If the footing and barrier are cast monolithically, # 6 S shape rebars are not required.
4. Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
5. # 4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
6. Thickness of gutter, "D" can be adjusted to match the PCCP thickness, as approved by the Engineer.
7. Two-inch deep construction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.



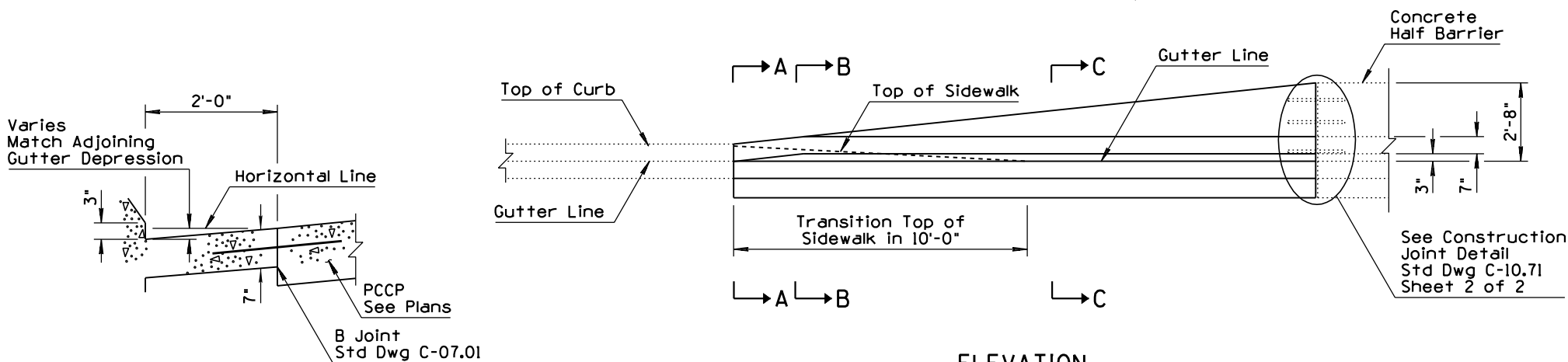
SECTION A-A

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION 42" TO 32" TYPE 'F'	DRAWING NO. C-10.74

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED WIDTH OF TRANSITION	RLF	9/04
2	REVISED GENERAL NOTE	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			

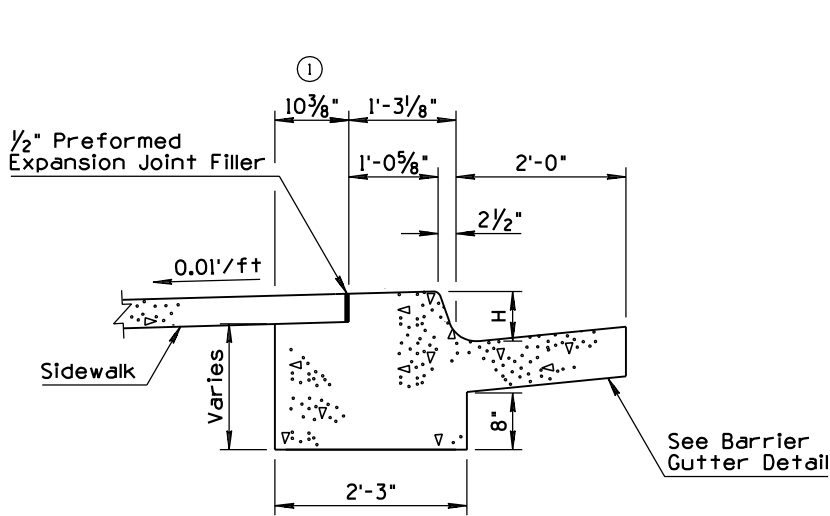


PLAN VIEW

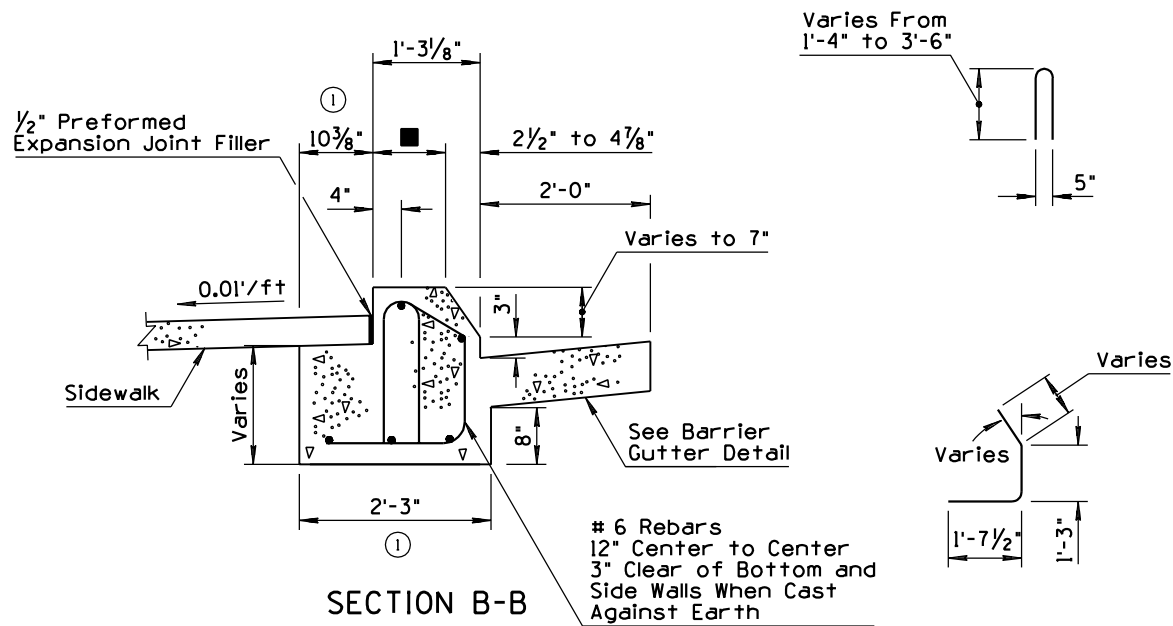


ELEVATION

BARRIER GUTTER DETAIL



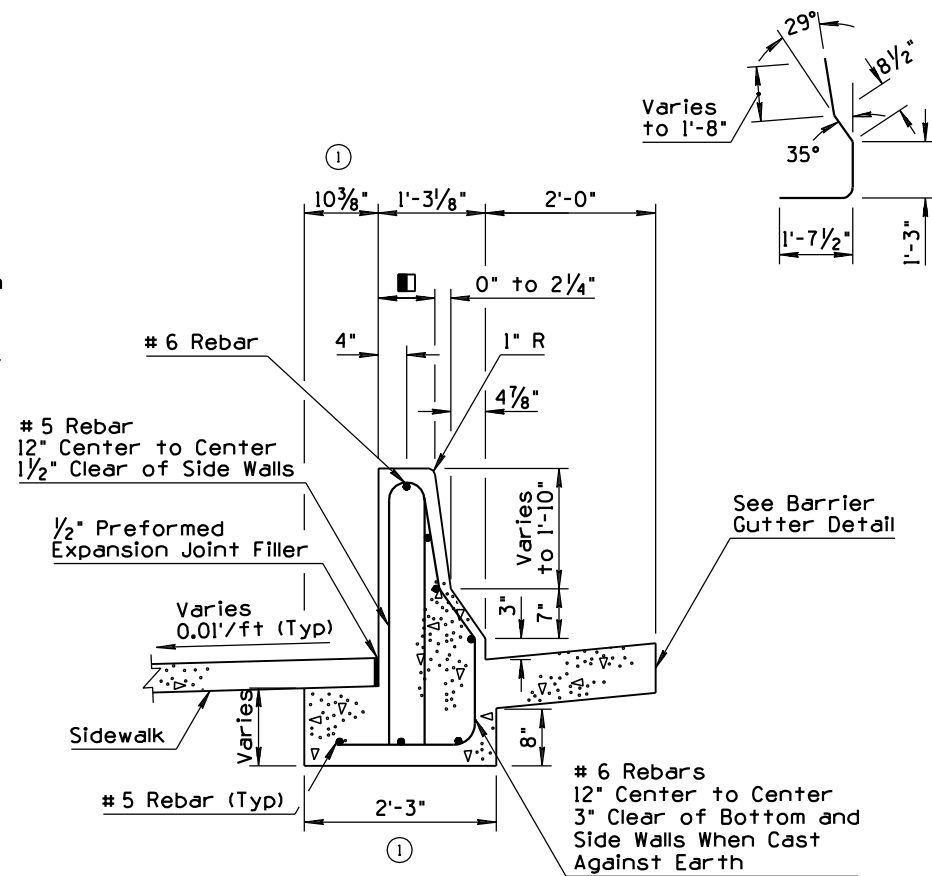
SECTION A-A



SECTION B-B

GENERAL NOTES

1. All concrete shall be Class S, f'c=4000 PSI.
 2. All rebar shall conform to Std Spec 1003.
 3. All rebar shall have 2" minimum clear cover unless otherwise noted.
 4. See drainage sheets for slotted drain and catch basin details.
 5. Barrier transition shall match both adjoining curb and gutter and concrete Half Barrier.
 6. See Std Dwg C-05.20 for sidewalk construction.
 7. All bend dimensions for rebar are out-to-out of rebars.
 8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- 10 1/4" to 8"
- 1'-0 5/8" to 10 1/4"

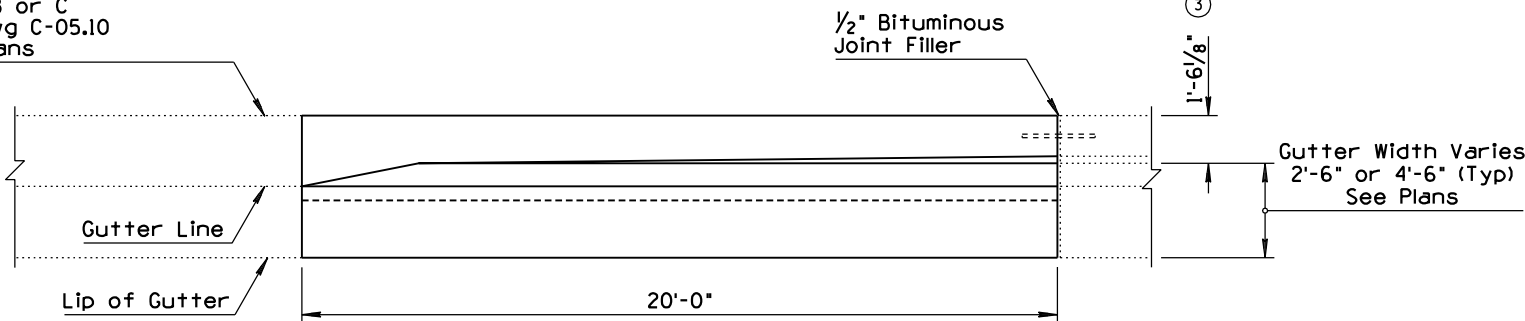


SECTION C-C
TRANSITION TO VERTICAL TYPE CURB

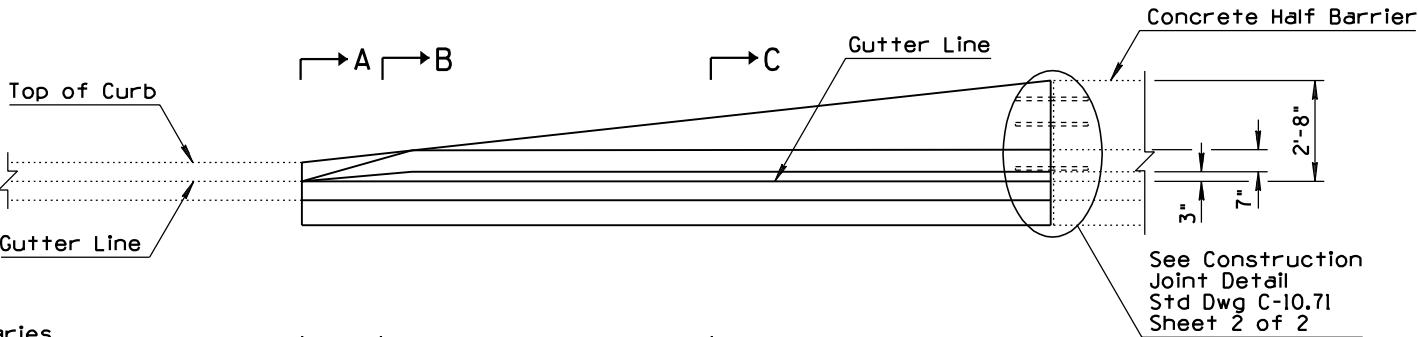
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' TANGENT DEPARTURE TYPE 1	DRAWING NO. C-10.75 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED GENERAL NOTE 1	RLF	9/04
2	ADDED BARRIER GUTTER DETAIL	RLF	9/04
3	REVISED WIDTH OF TRANSITION	RLF	9/04
4	REVISED TITLE	RLF	9/04

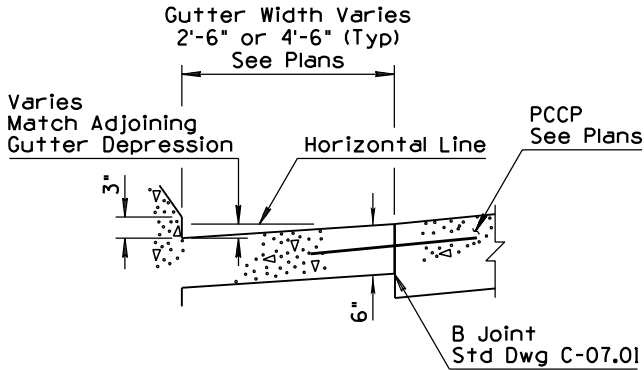
Concrete Curb & Gutter
Type B or C
Std Dwg C-05.10
See Plans



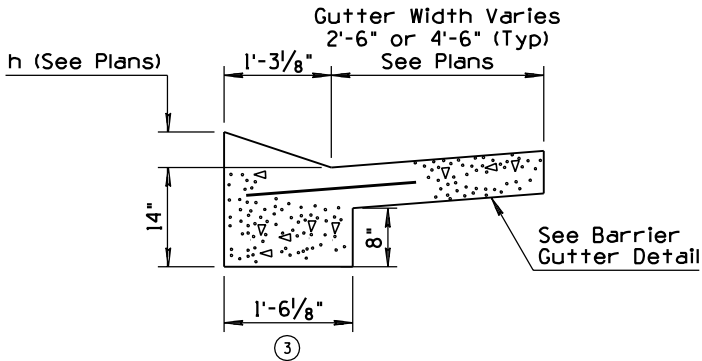
PLAN VIEW
Traffic
←



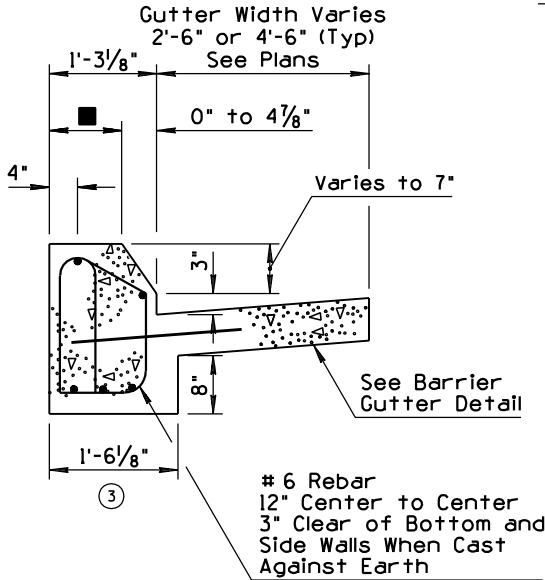
ELEVATION



BARRIER GUTTER DETAIL



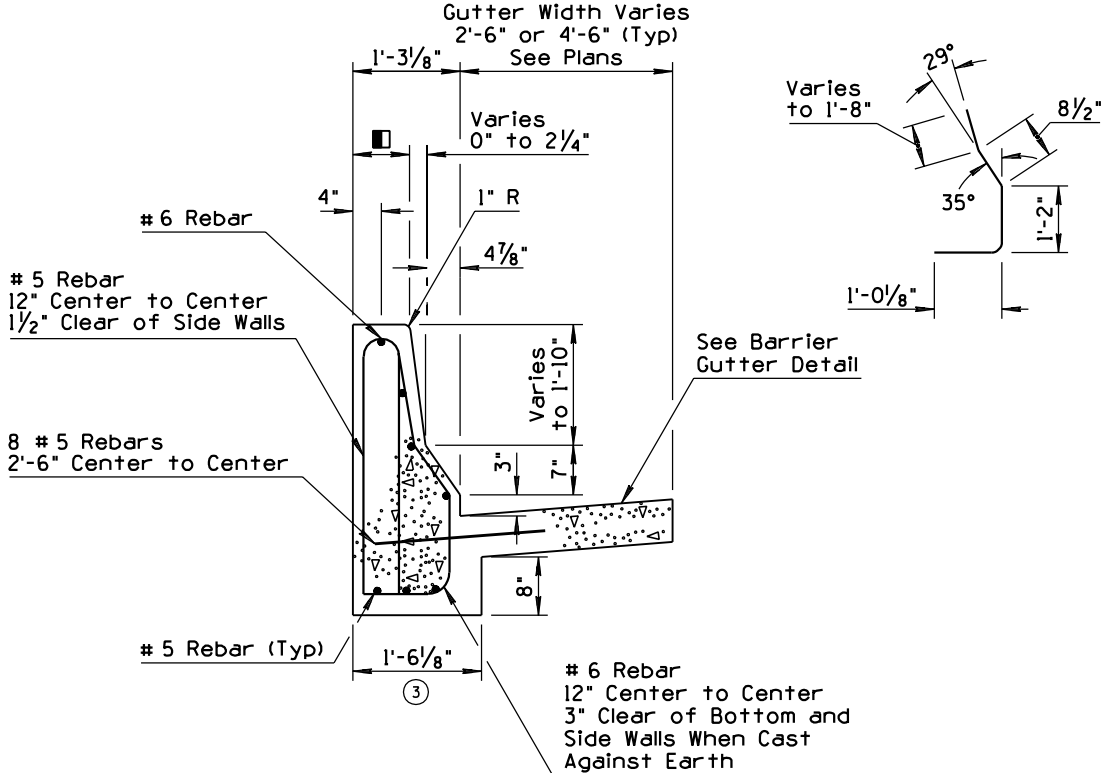
SECTION A-A



SECTION B-B

GENERAL NOTES

1. All concrete shall be Class S f'c=4000 PSI.
 2. All rebar shall conform to Std Spec 1003.
 3. All rebar shall have 2" minimum clear cover unless otherwise noted.
 4. See drainage sheets for slotted drain and catch basin details.
 5. Barrier transition shall match both adjoining curb and gutter and concrete Half Barrier.
 6. All bend dimensions for rebar are out-to-out of bars.
 7. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
- Varies 10 1/4" to 8"
- Varies 1'-3 1/8" to 10 1/4"

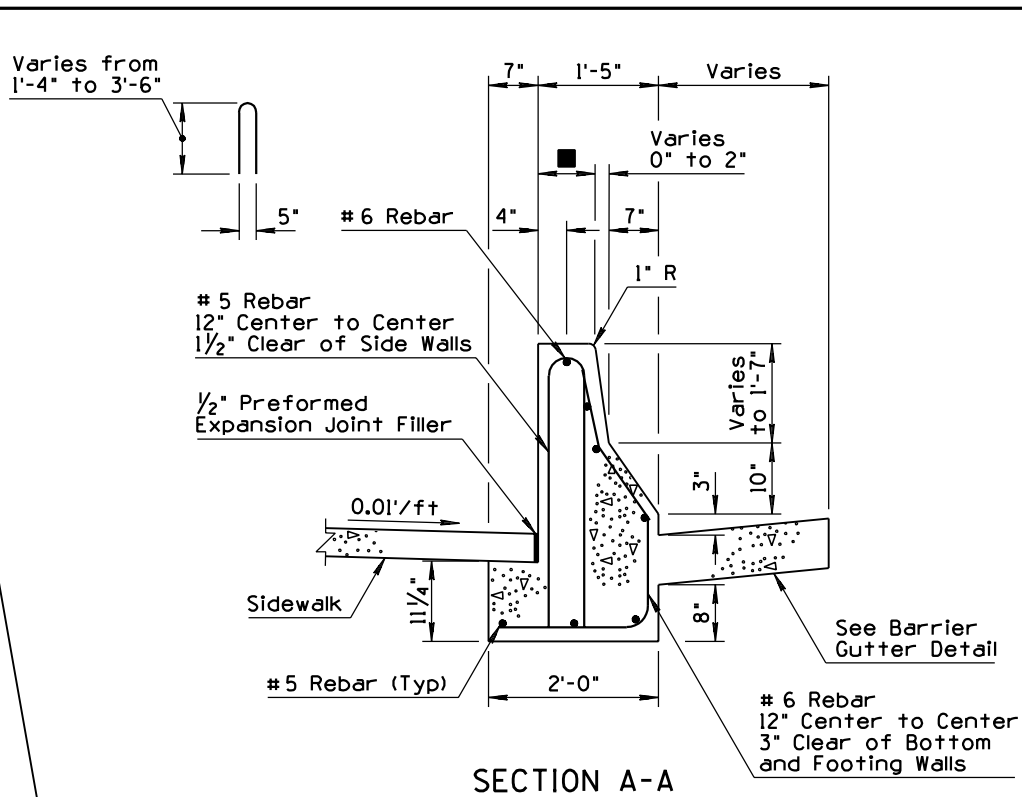
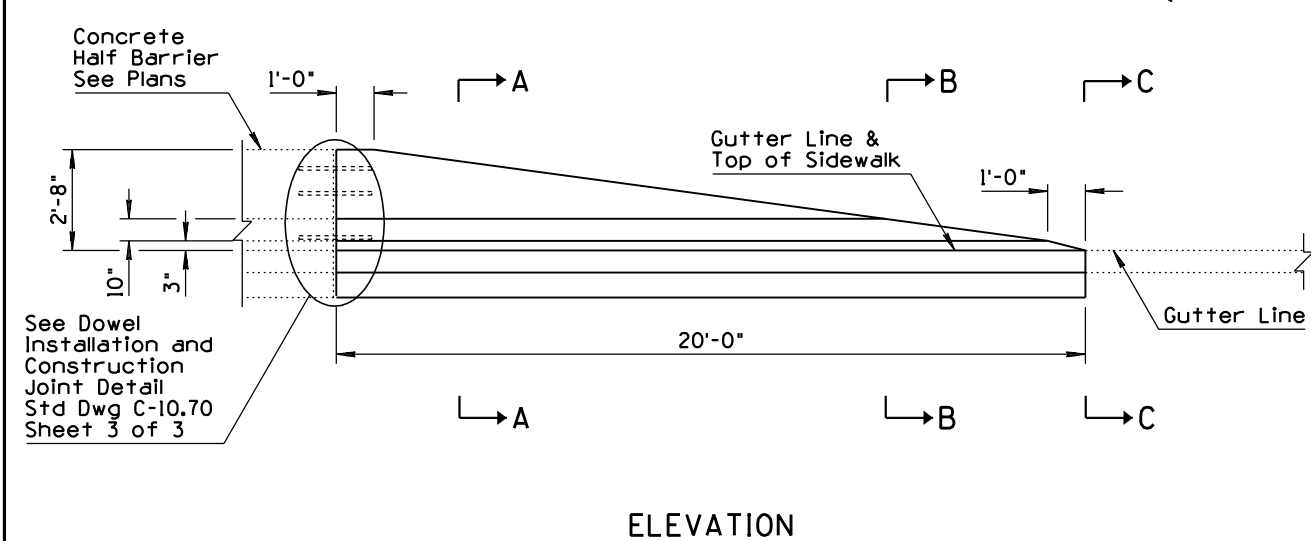
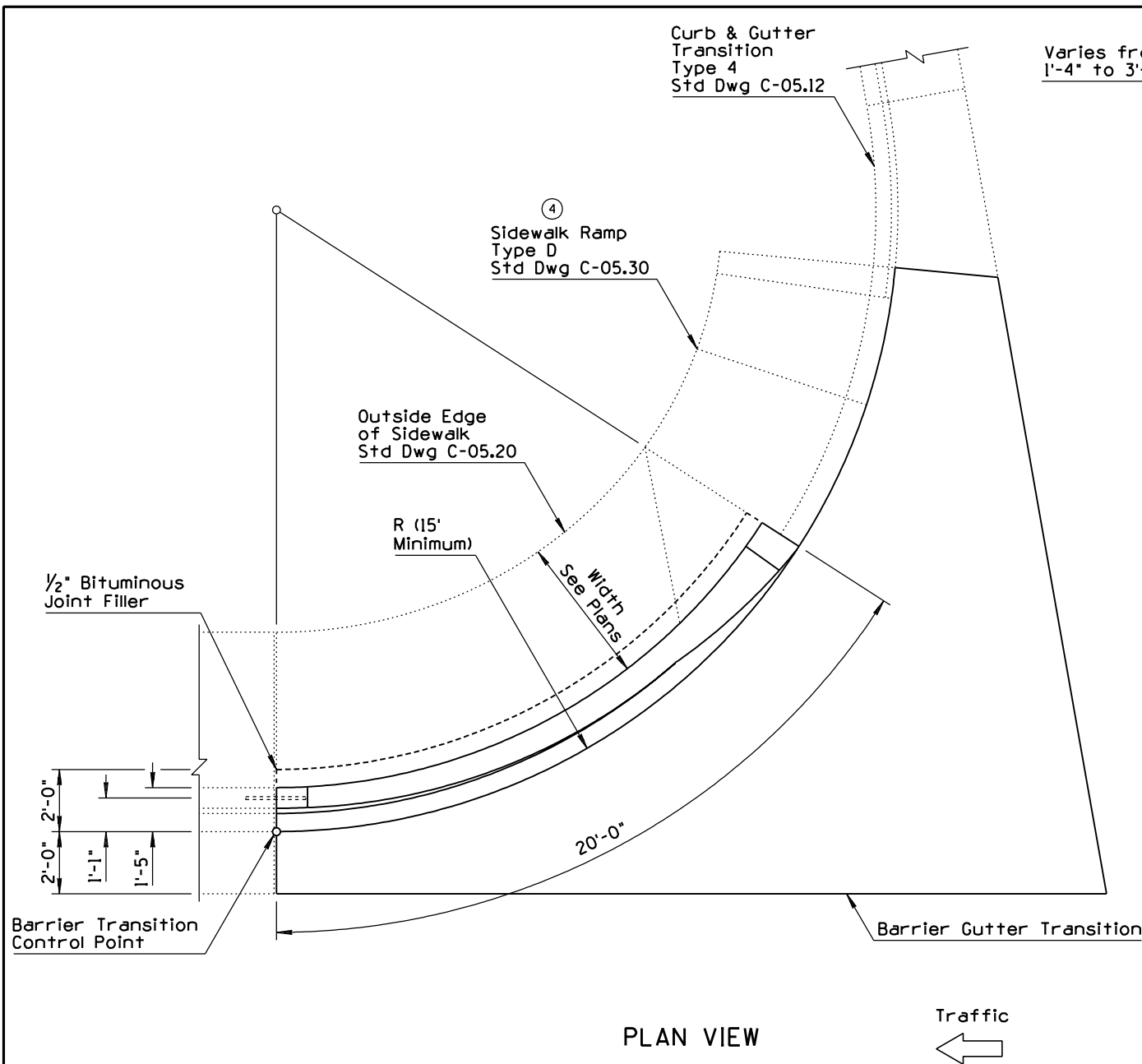


SECTION C-C

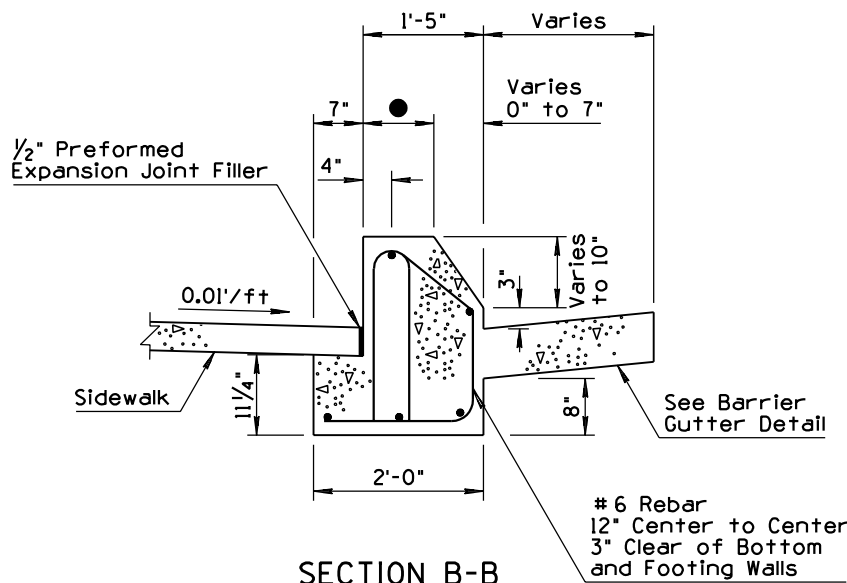
TRANSITION TO FREEWAY CURB

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' TANGENT DEPARTURE TYPE 2 ④	DRAWING NO. C-10.75 Sheet 2 of 2

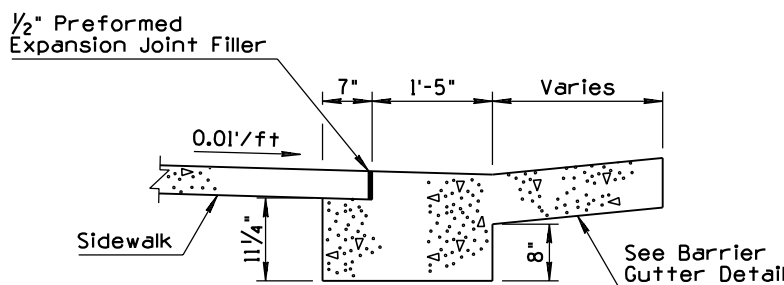
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED GENERAL NOTE 1	RLF	9/04
2	ADDED BARRIER GUTTER DETAIL	RLF	9/04
3	REVISED TITLE	RLF	9/04
4	REVISED TYPE	RLF	9/04



SECTION A-A



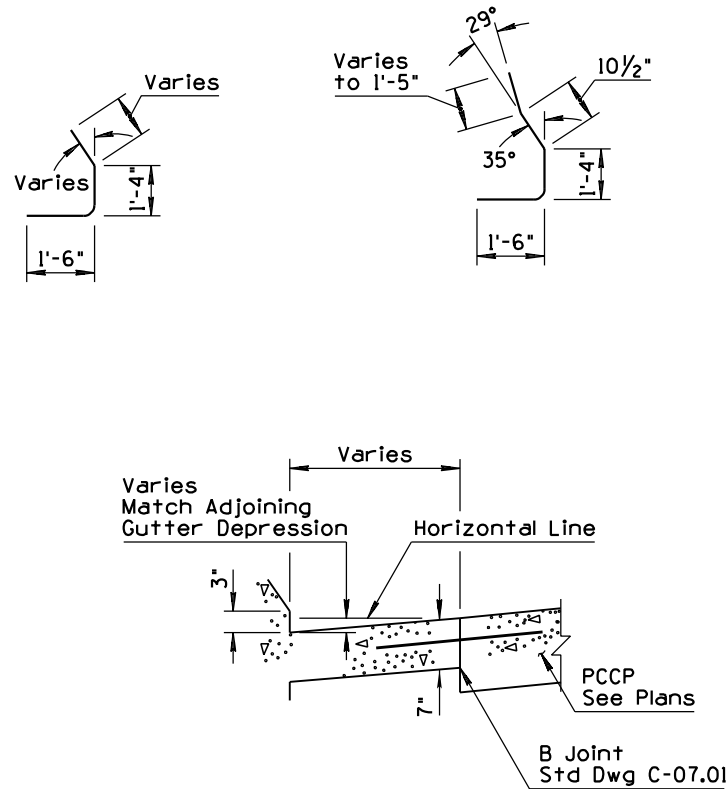
SECTION B-B



SECTION C-C

GENERAL NOTES

1. All concrete shall be Class S, f'c=4000 PSI.
 2. All rebar shall conform to Std Spec 1003.
 3. All rebar shall have 2" minimum clear cover unless otherwise noted.
 4. See drainage sheets for slotted drain and catch basin details.
 5. Barrier transition shall match the adjoining concrete half barrier.
 6. See Std Dwg C-05.20 for sidewalk construction.
 7. All bend dimensions for rebar are out-to-out of bars.
- Varies 0" to 8"
- Varies 1'-5" to 10"

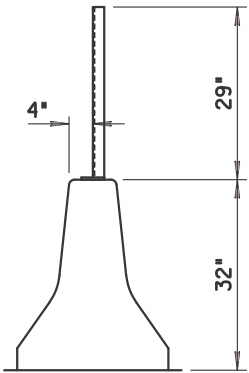


BARRIER GUTTER DETAIL

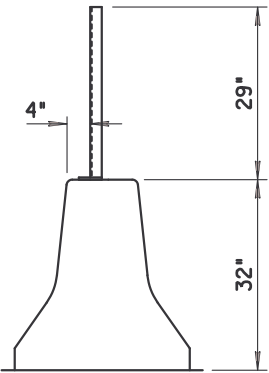
2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' AT RADIUS 32" TO 0" 3	DRAWING NO. C-10.76

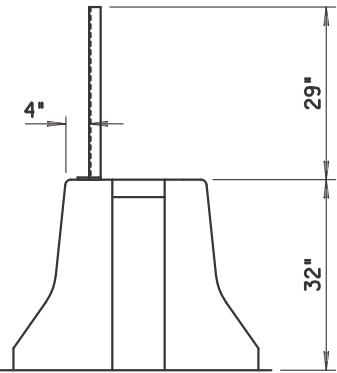
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED STANDARD	PNB	3/94
2			
3			
4			



GLARE SCREEN
INSTALLATION ON
STANDARD MEDIAN BARRIER



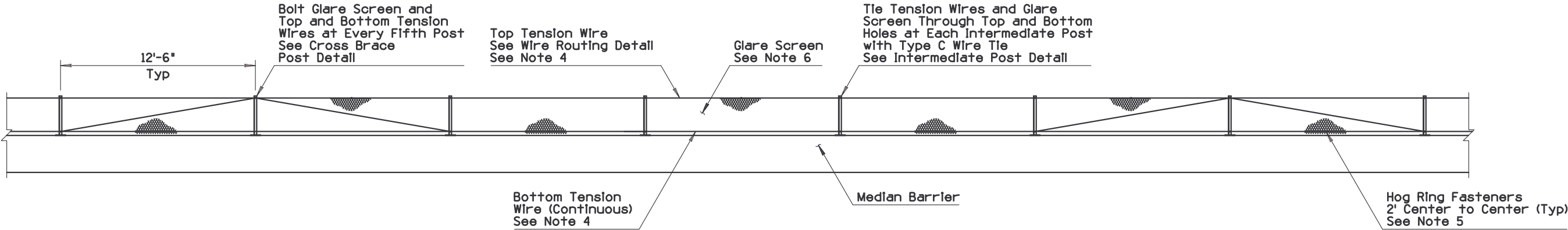
GLARE SCREEN
INSTALLATION ON
MEDIAN BARRIER TRANSITION



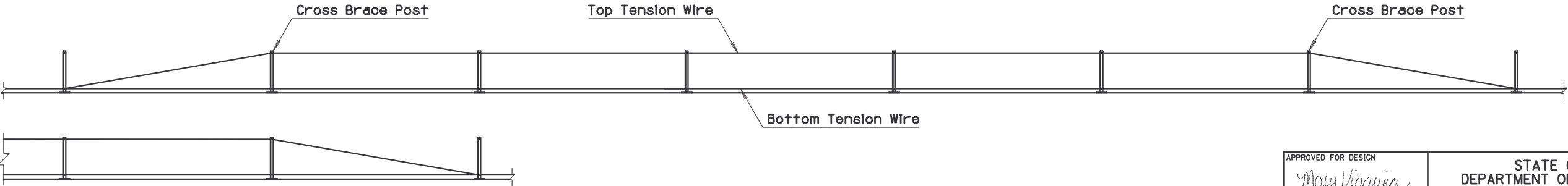
GLARE SCREEN
INSTALLATION ON
HALF BARRIER AT BRIDGE PIER

GENERAL NOTES

1. Posts shall be 12'-6" Center to Center. Structural steel shall conform to ASTM A36, galvanized in conformance with ASTM A123.
2. Hex head bolt shall conform to ASTM A307, galvanized in conformance with ASTM A153 Class C.
3. Helical spring lock washer shall conform to ASTM A313, galvanized in conformance with ASTM A153 Class C.
4. Tension wire: AWG number 9(0.148") galvanized in conformance with ASTM A116 Class 2.
5. Hog ring: AWG number 12 (0.105") galvanized in conformance with ASTM A116 Class 2. Fasten glare screen to top and bottom tension wire spaced approximately 2' apart.
6. Glare Screen: 18 gauge steel, ASTM A526, galvanized in accordance with ASTM A525/(G235), expanded to the following dimensions: 1.33" shortway of diamond and 4.0" longway of diamond (center to center of bridges) with a strand width of 0.250" angled at approximately 20° to the plane of the original sheet. Top edge to be shop curled and crimped on 12" center to center. Glare screen shall be installed such that flat portion of screen blocks light from headlights. See Direction Detail.
7. Splices allowed in glare screen at posts only, with one full diamond overlap.
8. Glare screen shall be constructed without interruption to the greatest degree possible.



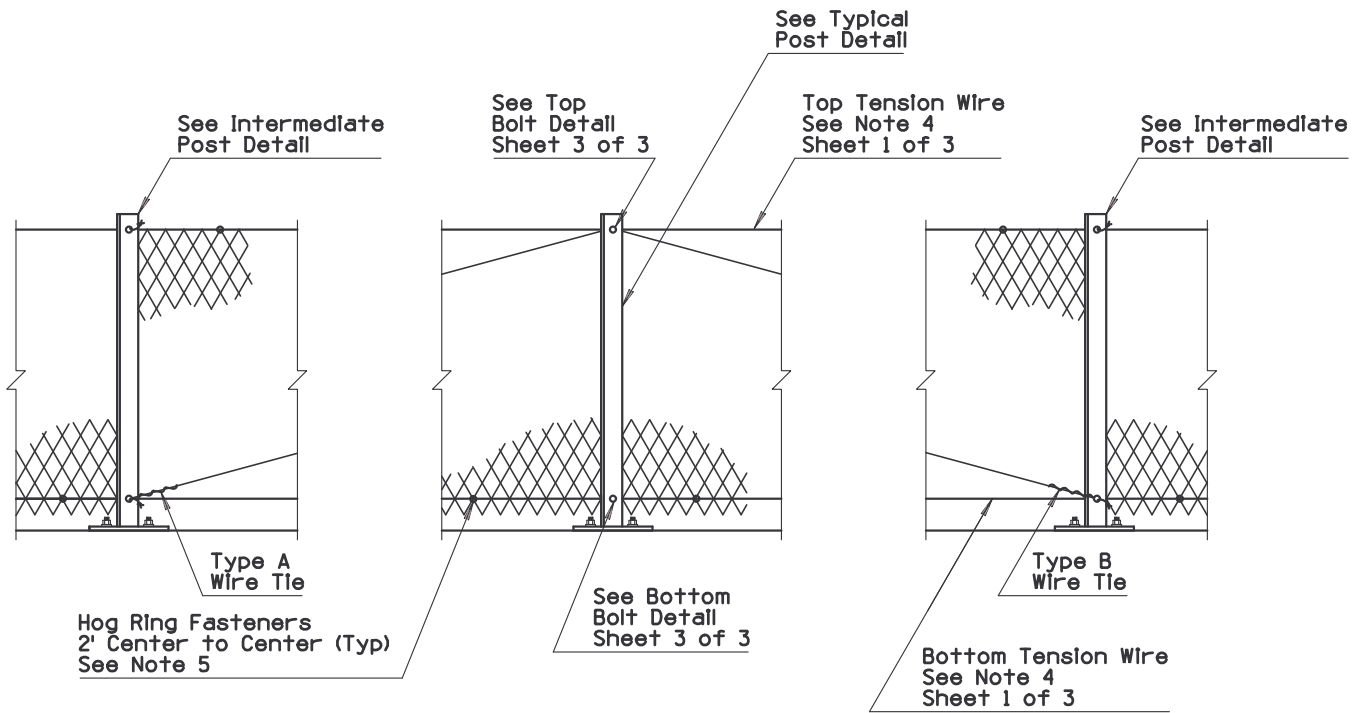
ELEVATION



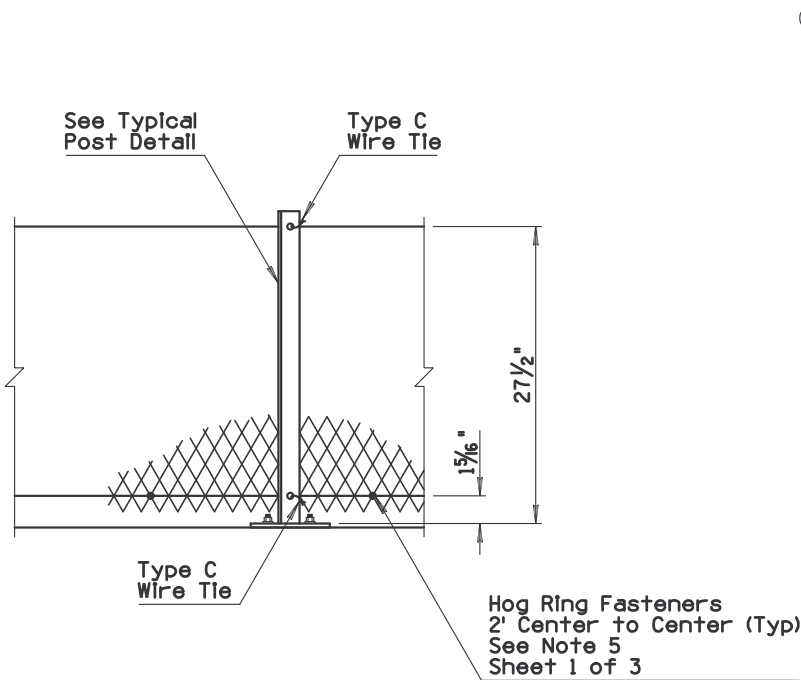
TENSION WIRE ROUTING DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 3/94
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	① GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. C-10.97 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DESIGNATION	RLF	9/04
2			
3			
4			

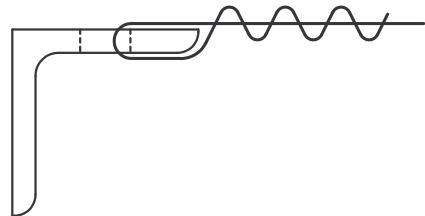


CROSS BRACE POST DETAIL

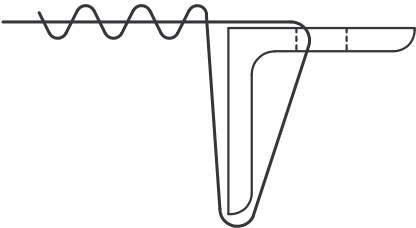


INTERMEDIATE POST DETAIL

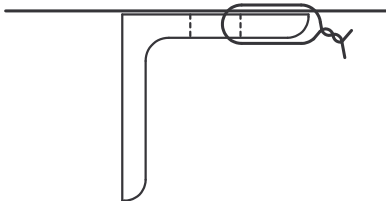
① ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



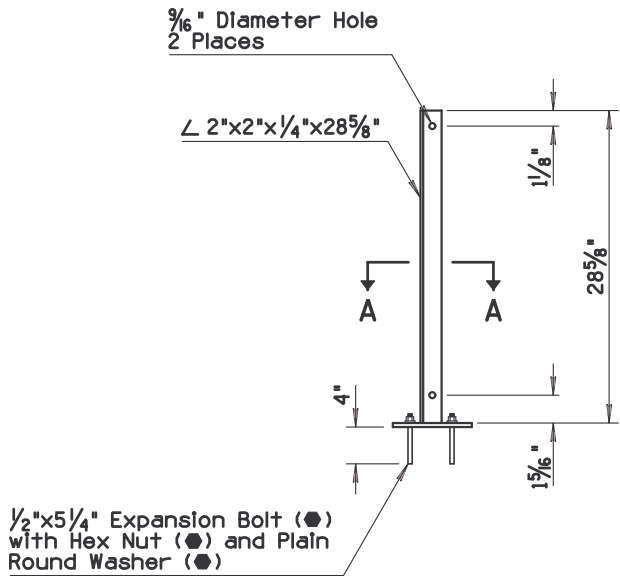
TYPE A WIRE TIE



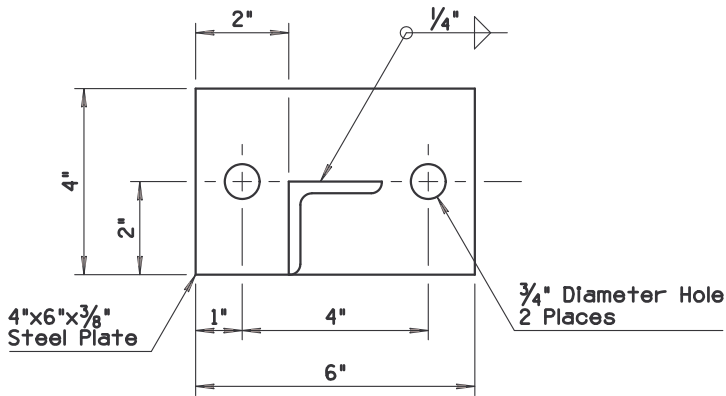
TYPE B WIRE TIE



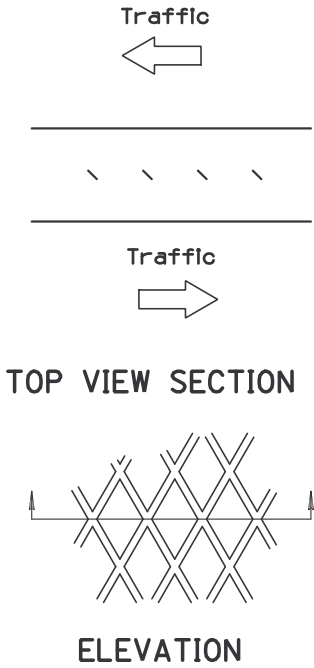
TYPE C WIRE TIE



TYPICAL POST DETAIL



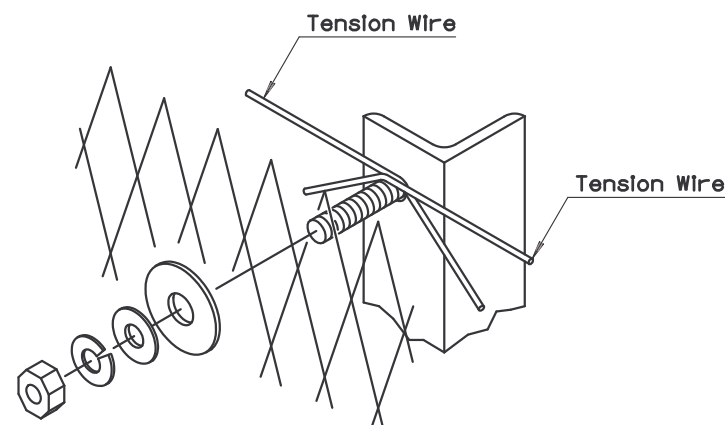
SECTION A-A



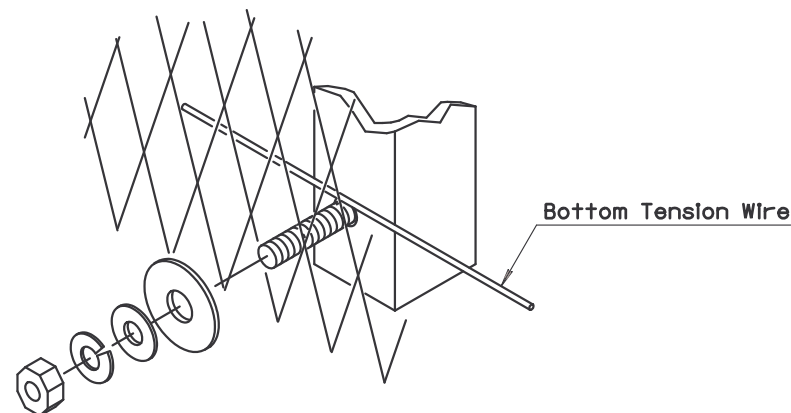
DIRECTION DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. C-10.97 Sheet 2 of 3

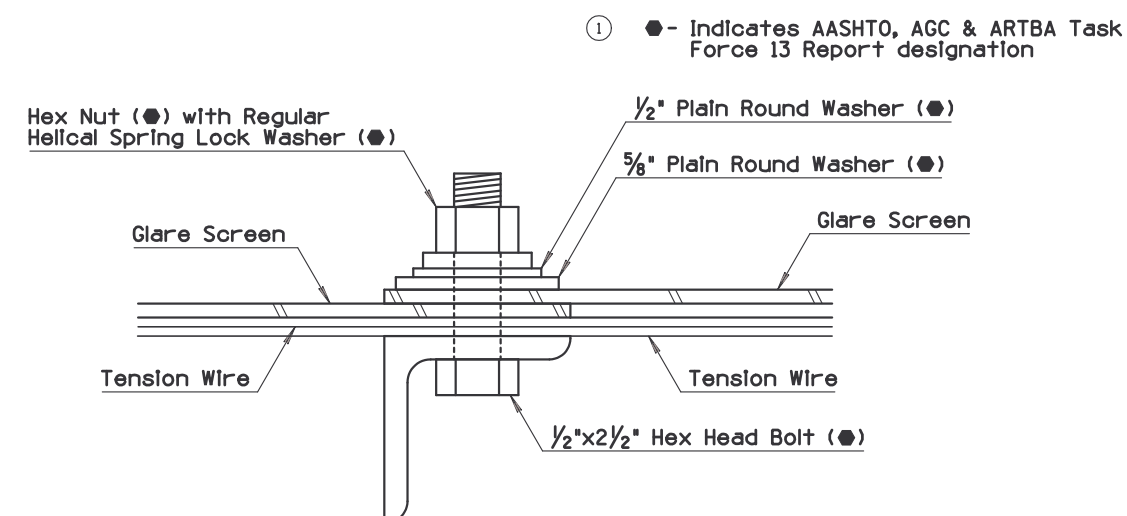
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DESIGNATION	RLF	9/04
2			
3			
4			



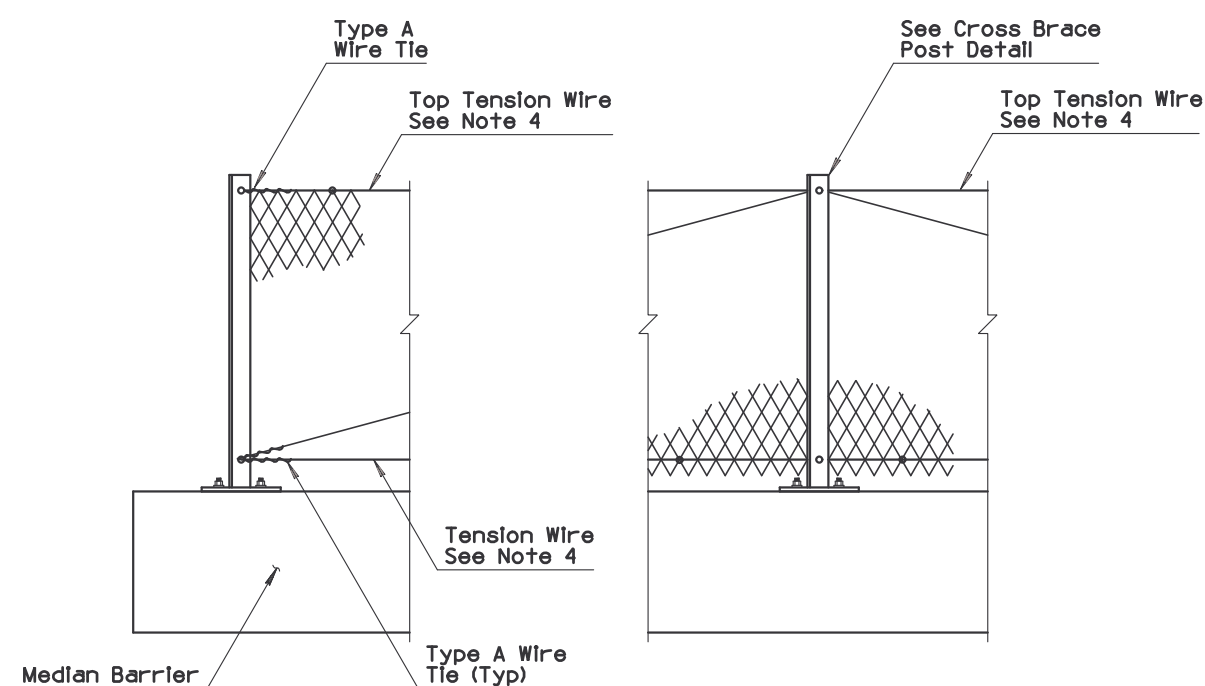
TOP BOLT DETAIL



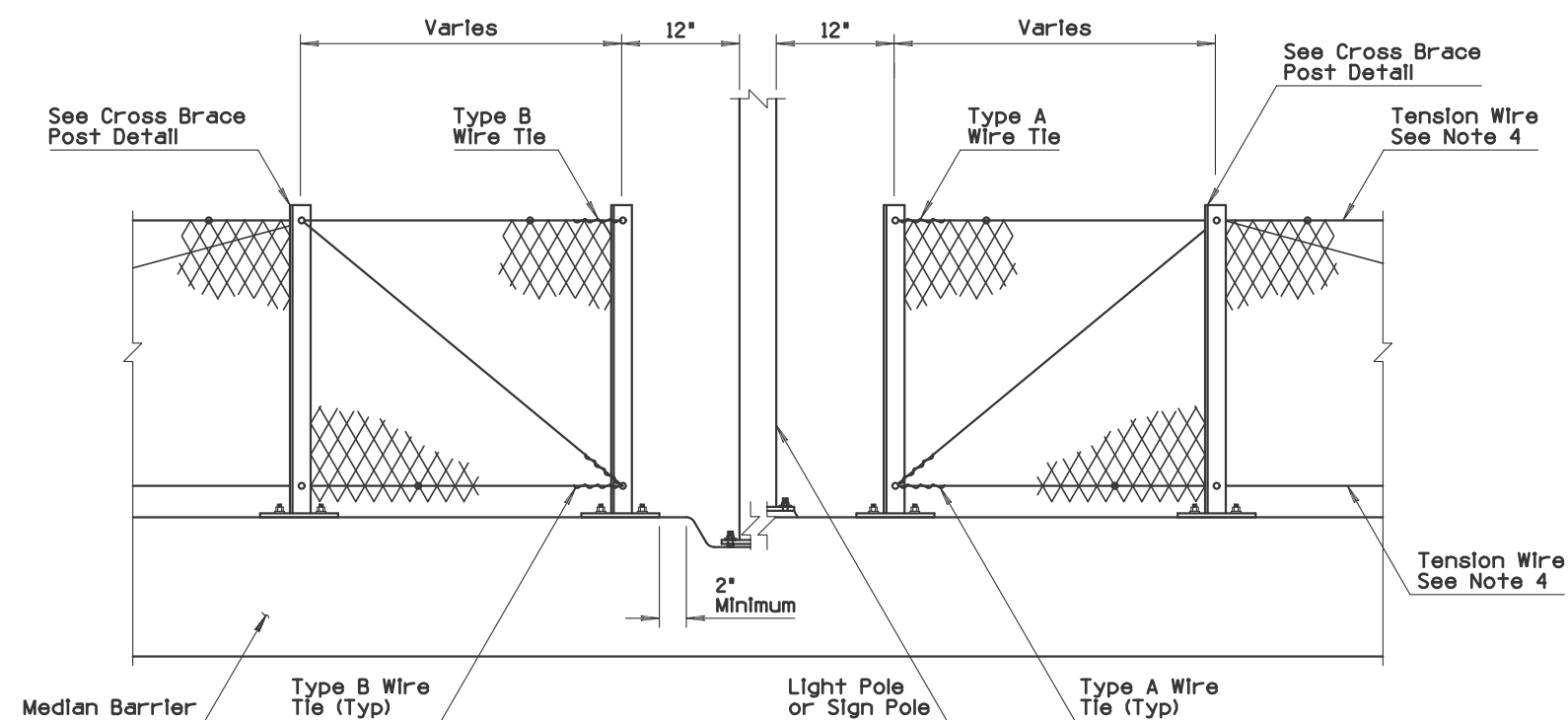
BOTTOM BOLT DETAIL



TOP BOLT SECTION



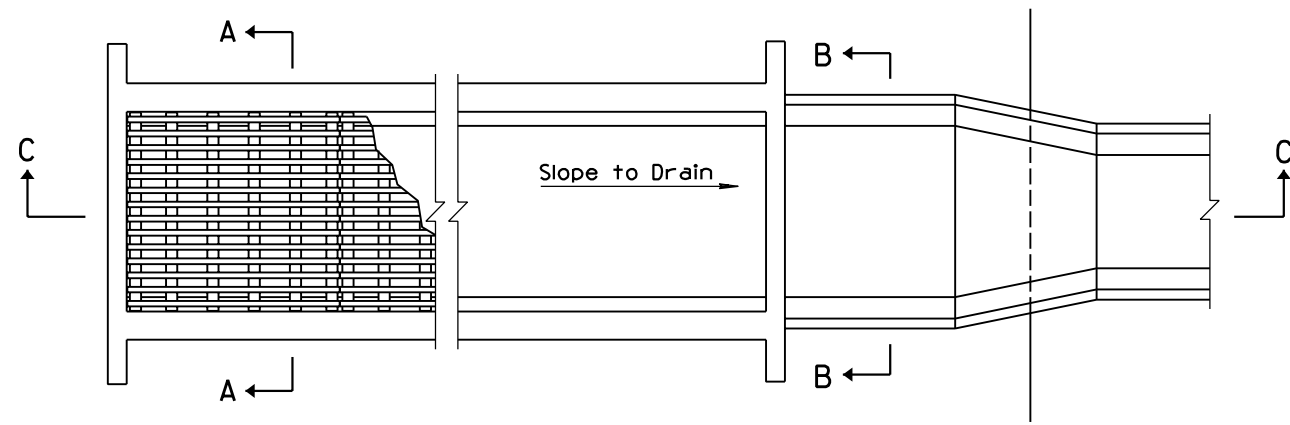
TERMINATION DETAIL



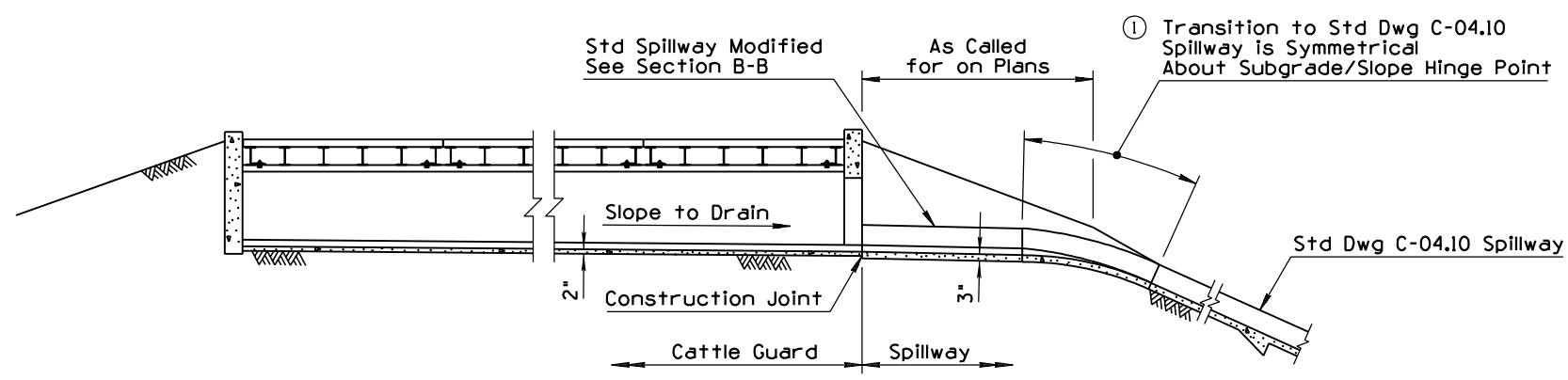
OBSTRUCTION DETAIL

APPROVED FOR DESIGN <i>May Vignone</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. C-10.97 Sheet 3 of 3

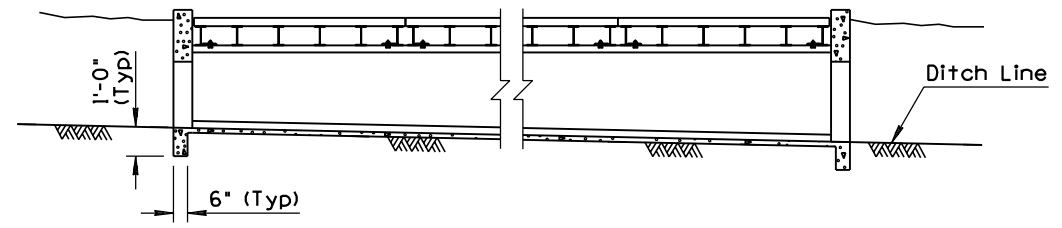
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED NOTE	PNB	7/94
2			
3			
4			



PLAN



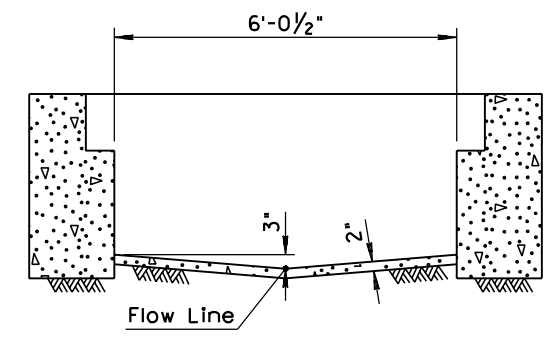
SECTION C-C
IN EMBANKMENT



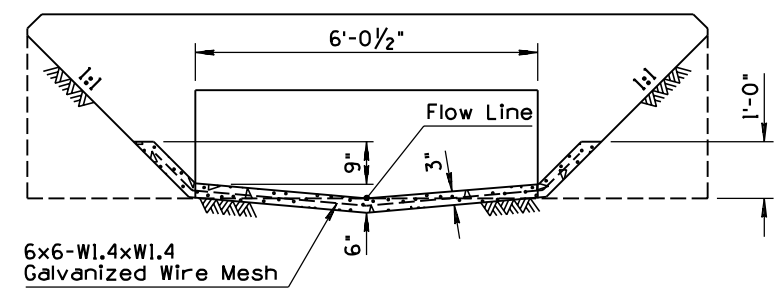
SECTION C-C
WHERE USED FOR THROUGH DRAINAGE-
CATTLE GUARD OPEN BOTH ENDS

GENERAL NOTES

1. See Std Dwg C-11.10 for all other Cattle Guard details.
2. This standard shall be used in embankment or where highly erodable soil is found.
3. All concrete shall be Class B.



SECTION A-A

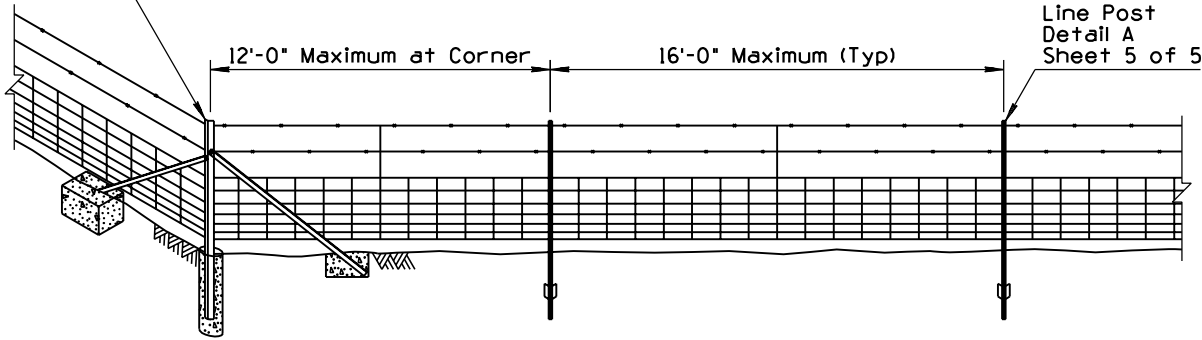


SECTION B-B

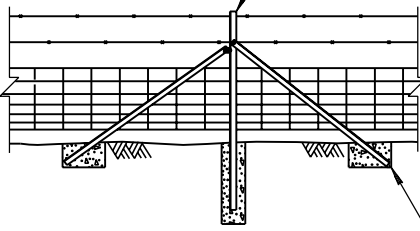
APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATTLE GUARD, DRAINAGE	DRAWING NO. C-11.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED ASTM CALLOUT	PNB	7/94
2			
3			
4			

Corner Post Assembly
Detail D
Sheet 5 of 5

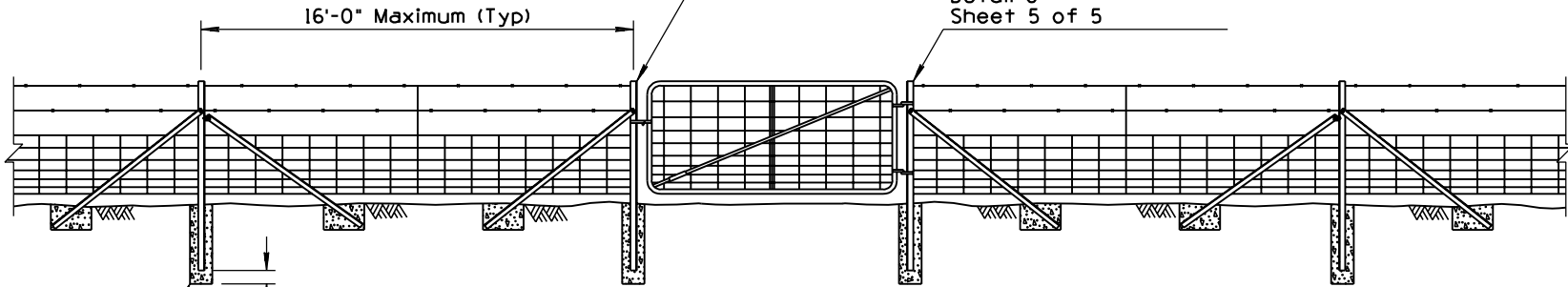


Intermediate Post Assembly
Detail B
Sheet 5 of 5



Latch/End Post Assembly
Detail C
Sheet 5 of 5

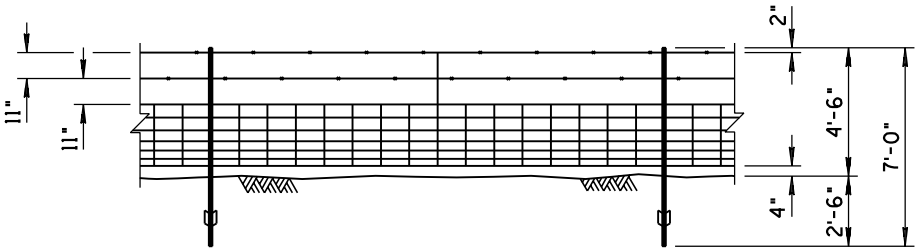
Gate/End Post Assembly
Detail C
Sheet 5 of 5



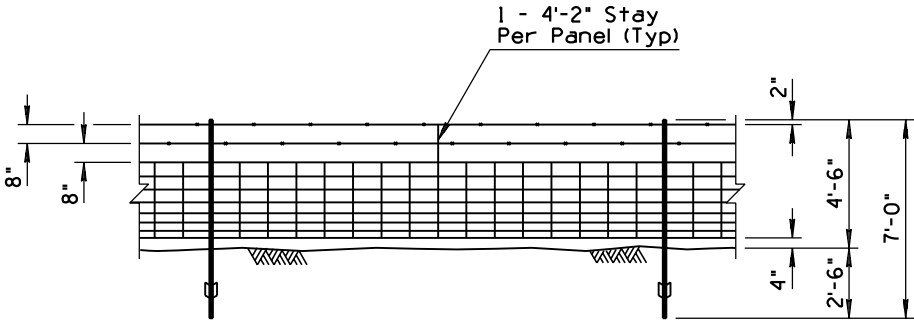
10" Diameter x 3'-0"
Concrete Footing (Typ)

6" Typ

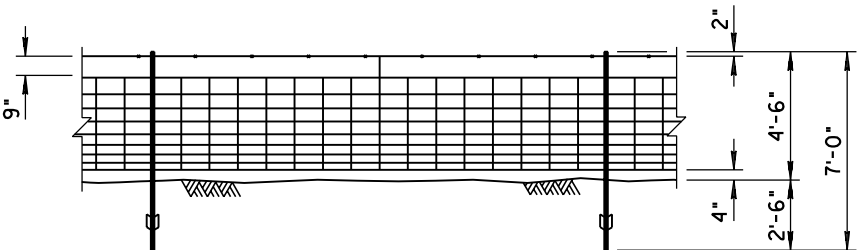
TYPICAL WOVEN WIRE FENCE INSTALLATION-TYPE 1 WW SHOWN



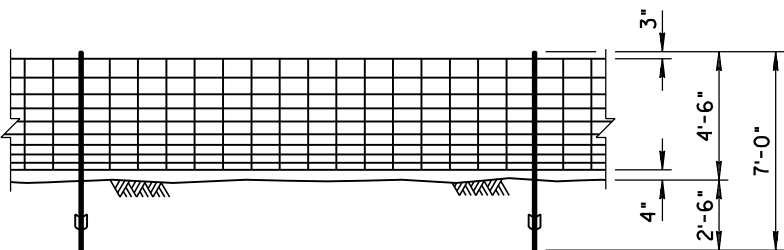
TYPE 1 WOVEN WIRE (WW)



TYPE 2 WOVEN WIRE (WW)



TYPE 3 WOVEN WIRE (WW)

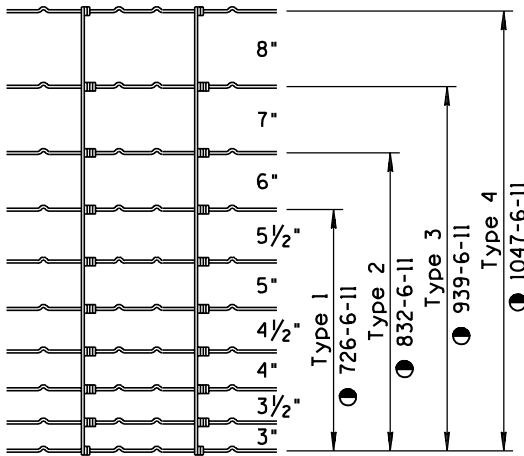


TYPE 4 WOVEN WIRE (WW)

GENERAL NOTES

1. Length of post and braces shall not be less than 7'-0".
2. Woven wire fence fabric shall be attached to the post at the top, bottom, and intermediate wires.
3. Intermediate Post Assemblies shall be located as shown and at intervals to utilize standard rolls to minimize cutting and waste.
4. A twisted wire stay shall be centered between posts.

① ● ASTM design number

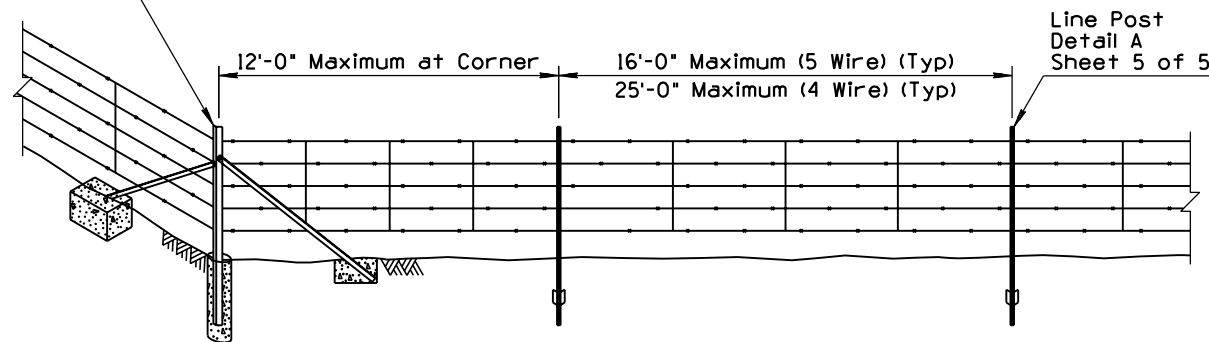


FENCE FABRIC DIMENSIONS
AND DESIGN NUMBERS

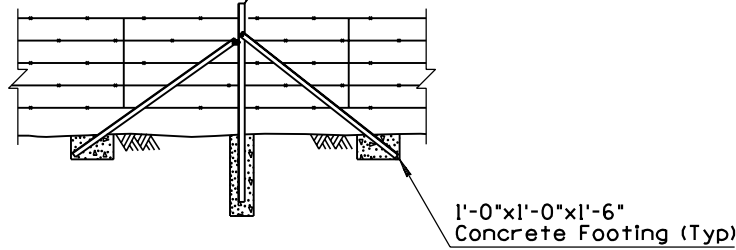
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE WOVEN WIRE	DRAWING NO. C-12.10 Sheet 1 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUE STD	PNB	7/94
2			
3			
4			

Corner Post Assembly
Detail D
Sheet 5 of 5

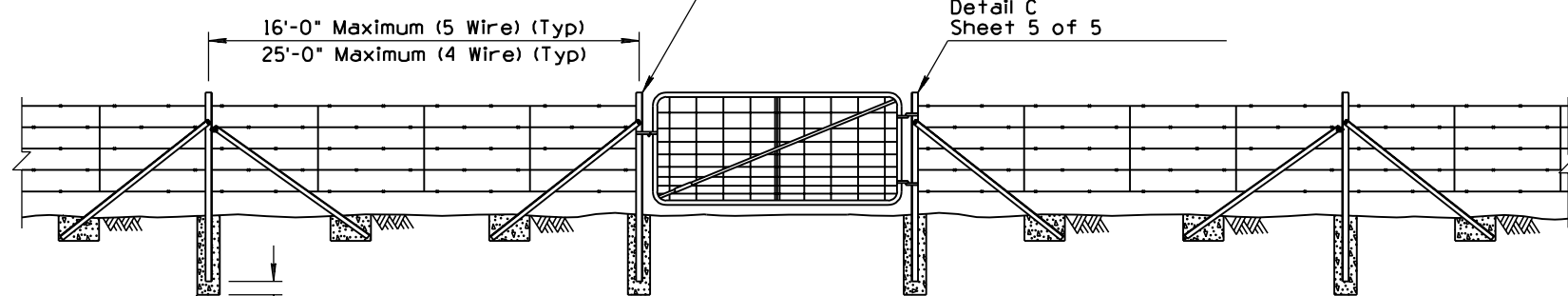


Intermediate Post Assembly
Detail B
Sheet 5 of 5



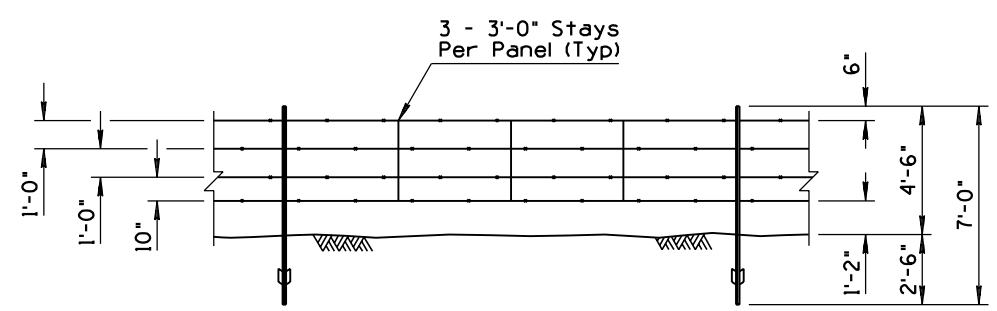
Latch/End Post Assembly
Detail C
Sheet 5 of 5

Gate/End Post Assembly
Detail C
Sheet 5 of 5

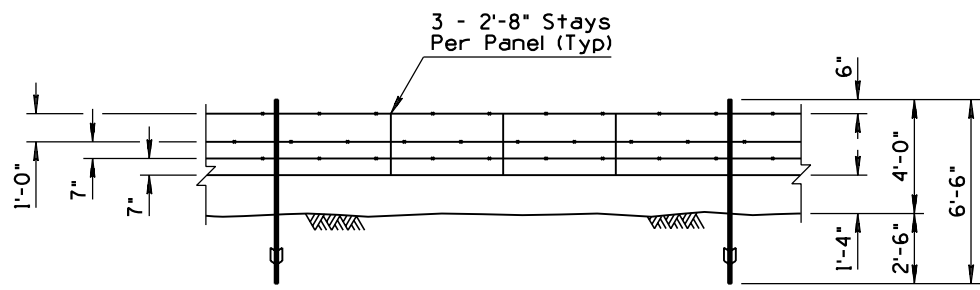


10" Diameter x 3'-0"
Concrete Footing (Typ)

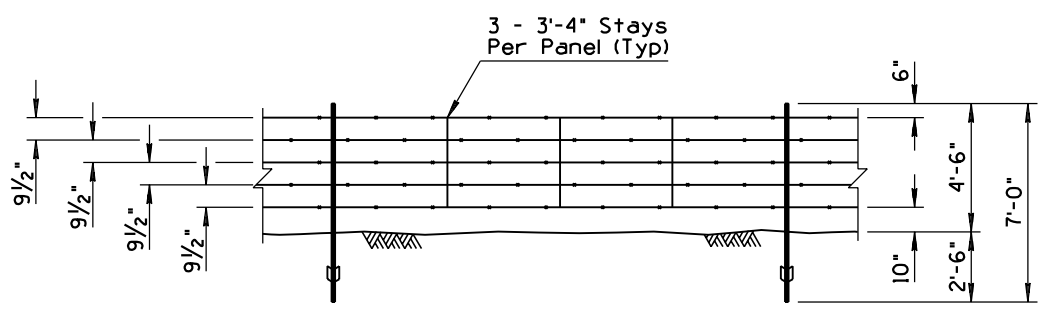
TYPICAL BARBED WIRE FENCE INSTALLATION-TYPE 2 BW SHOWN



TYPE 1 BARBED WIRE (BW) (4 WIRE)



BARBED WIRE GAME FENCE (GF)



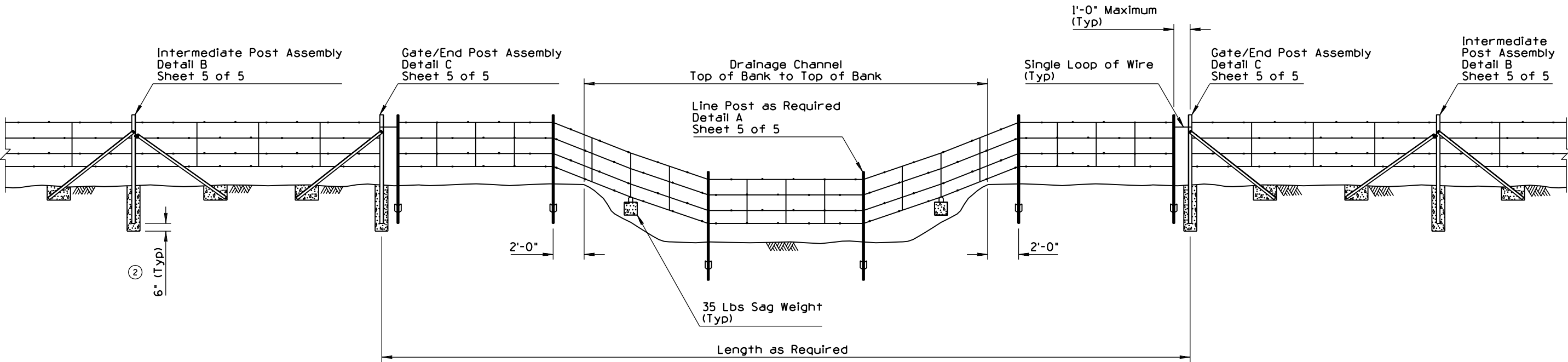
TYPE 2 BARBED WIRE (BW) (5 WIRE)

GENERAL NOTES

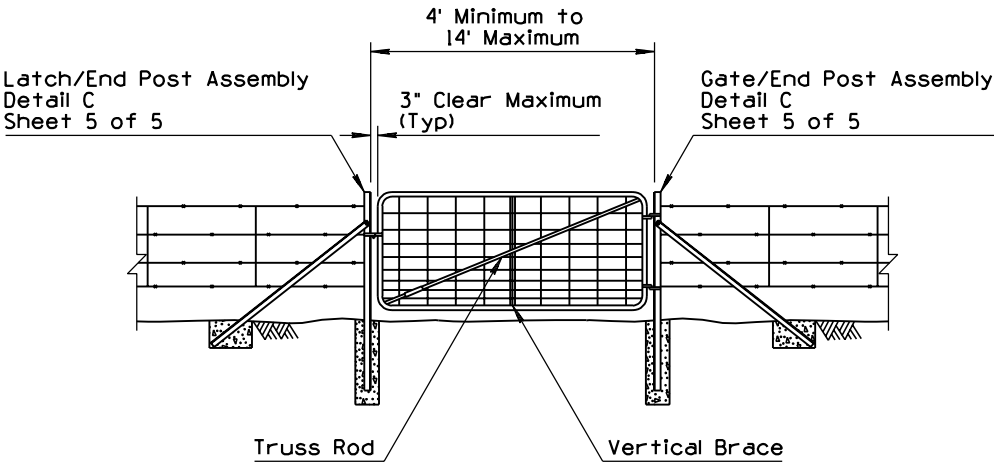
1. Intermediate Post Assemblies shall be located as shown and at intervals not to exceed 500', or midway between all braced posts.
2. For game fence the bottom wire shall be barbless.
3. The stays on game fence shall have their ends turned up to prevent injuries to game.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① FENCE BARBED WIRE	DRAWING NO. C-12.10 Sheet 2 of 5

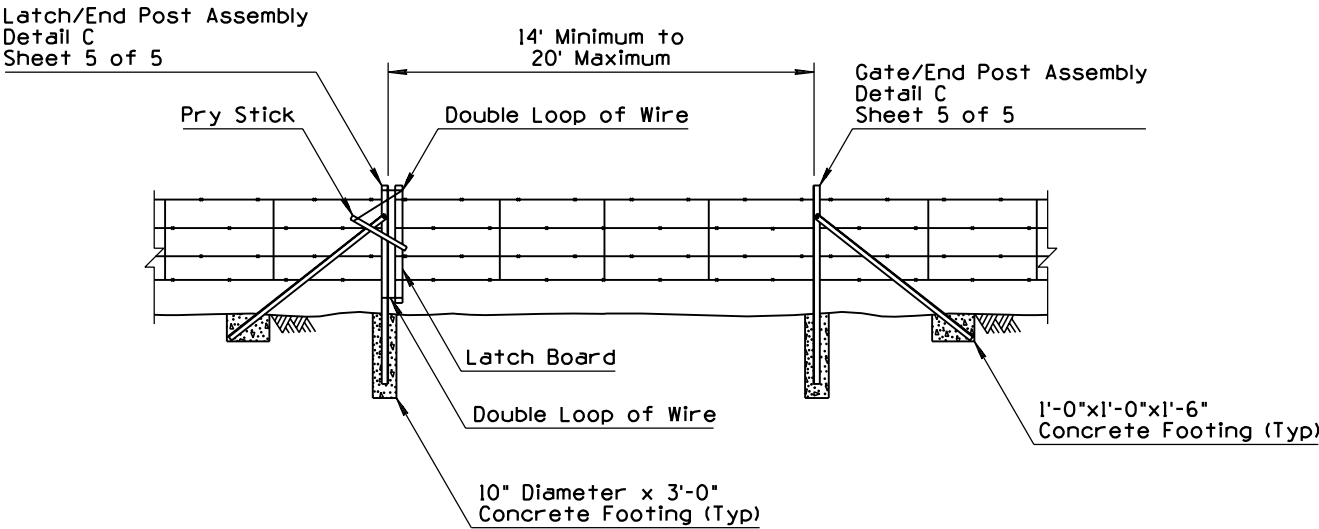
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUE STD	PNB	7/94
2	ADDED DIMENSION	RLF	9/04
3			
4			



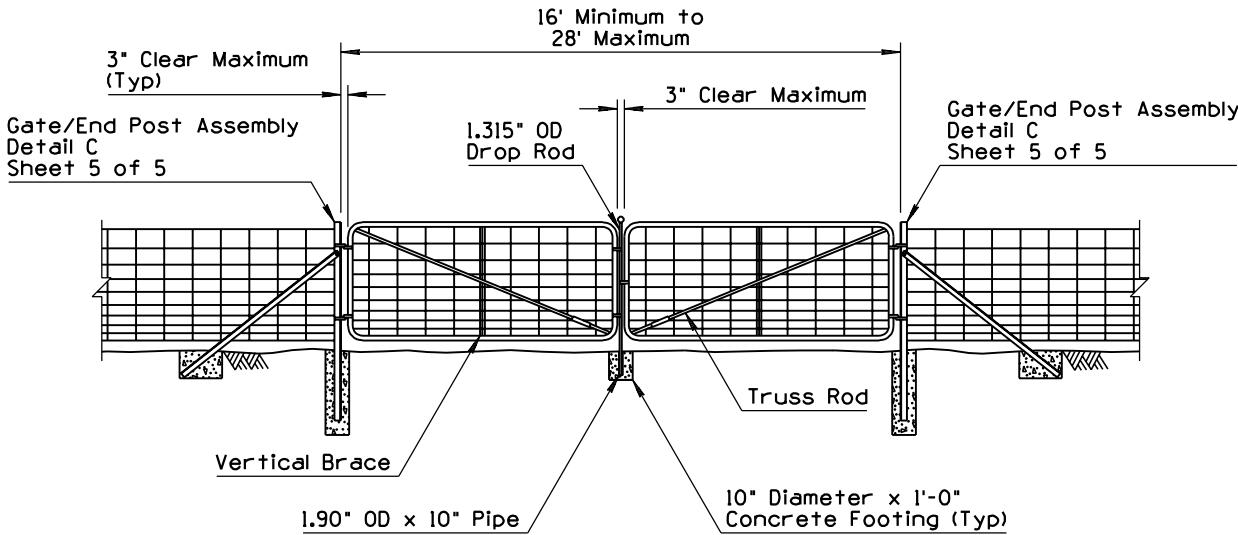
FLOOD GATE



TYPE 1 SINGLE GATE



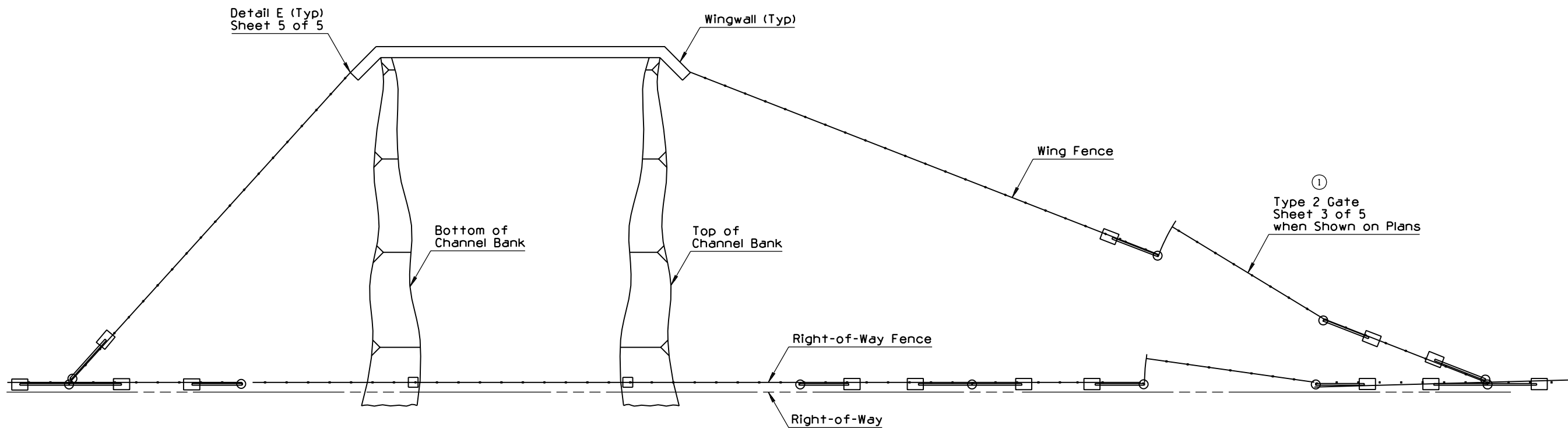
TYPE 2 GATE



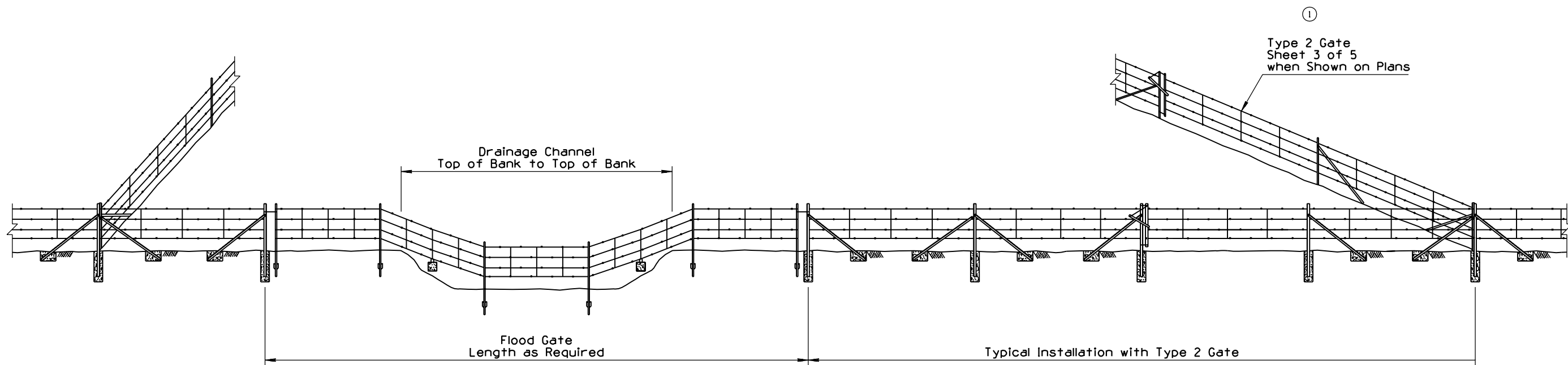
TYPE 1 DOUBLE GATE

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① FENCE TYPE 1 AND 2 GATES FLOOD GATE	DRAWING NO. C-12.10 Sheet 3 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED TYPE 2 GATE	RLF	9/04
2			
3			
4			



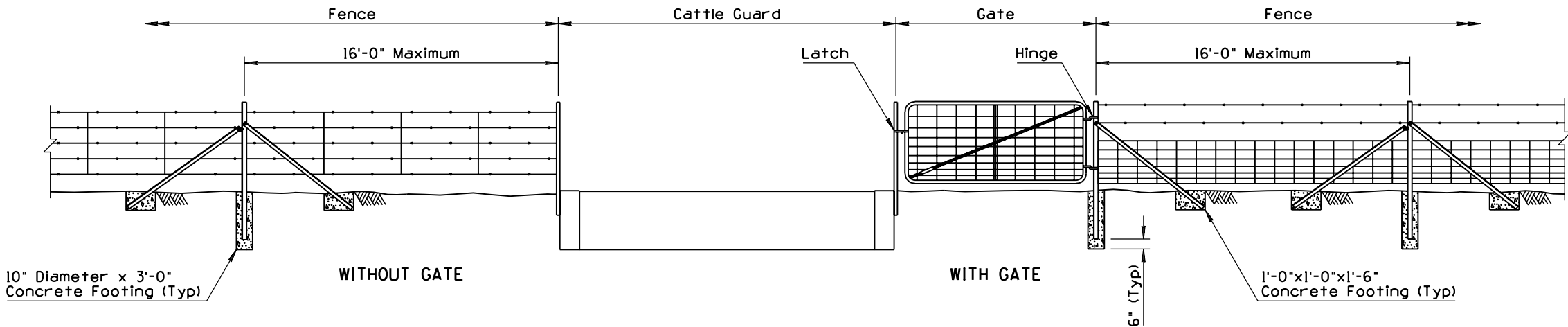
PLAN



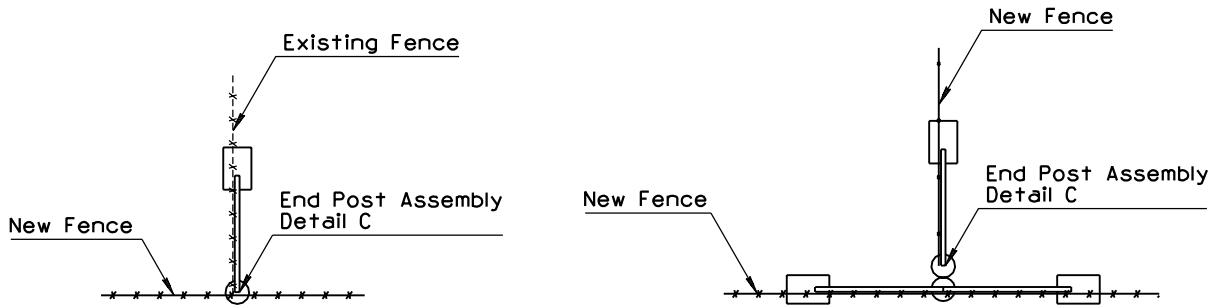
ELEVATION
TYPICAL FLOOD GATE INSTALLATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	FENCE FLOOD GATE INSTALLATION	DRAWING NO. C-12.10 Sheet 4 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUE STD	PNB	7/94
2			
3			
4			

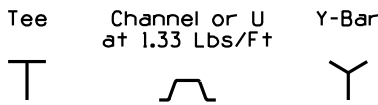


TYPICAL FENCE LOCATION AT CATTLE GUARD



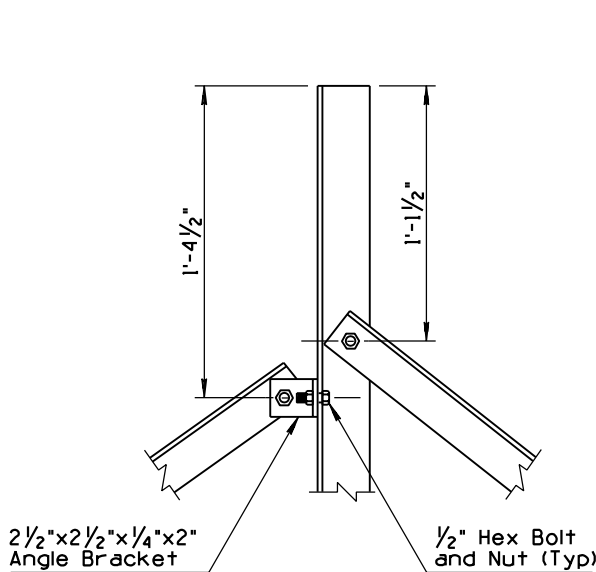
ABUTTING FENCE

ABUTTING FENCE AT POST

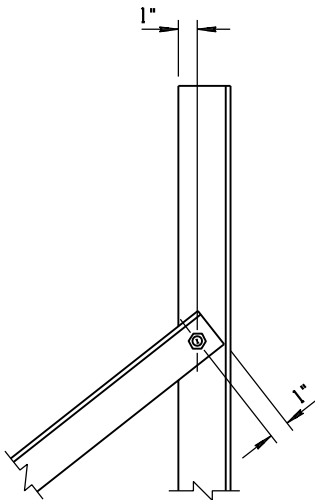


DETAIL A

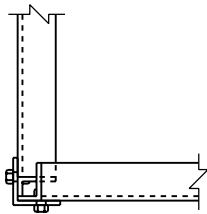
TYPICAL CROSS SECTIONS OF LINE POST SHAPES



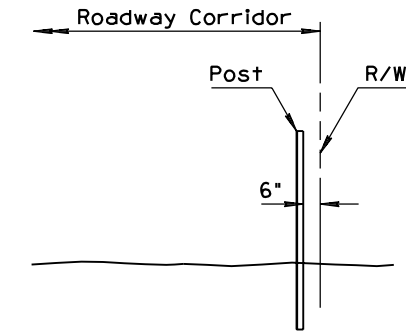
DETAIL B
INTERMEDIATE POST ASSEMBLY



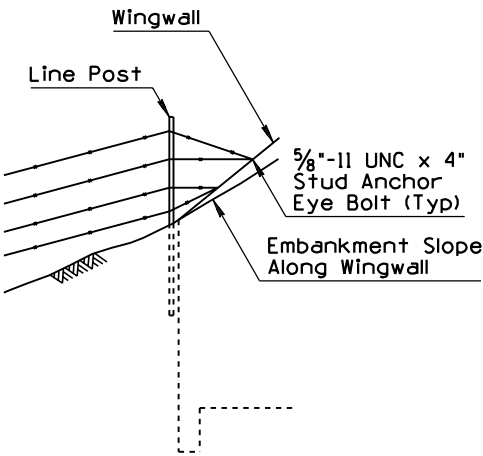
DETAIL C
END POST ASSEMBLY



DETAIL D
CORNER POST ASSEMBLY



TYPICAL FENCE LOCATION



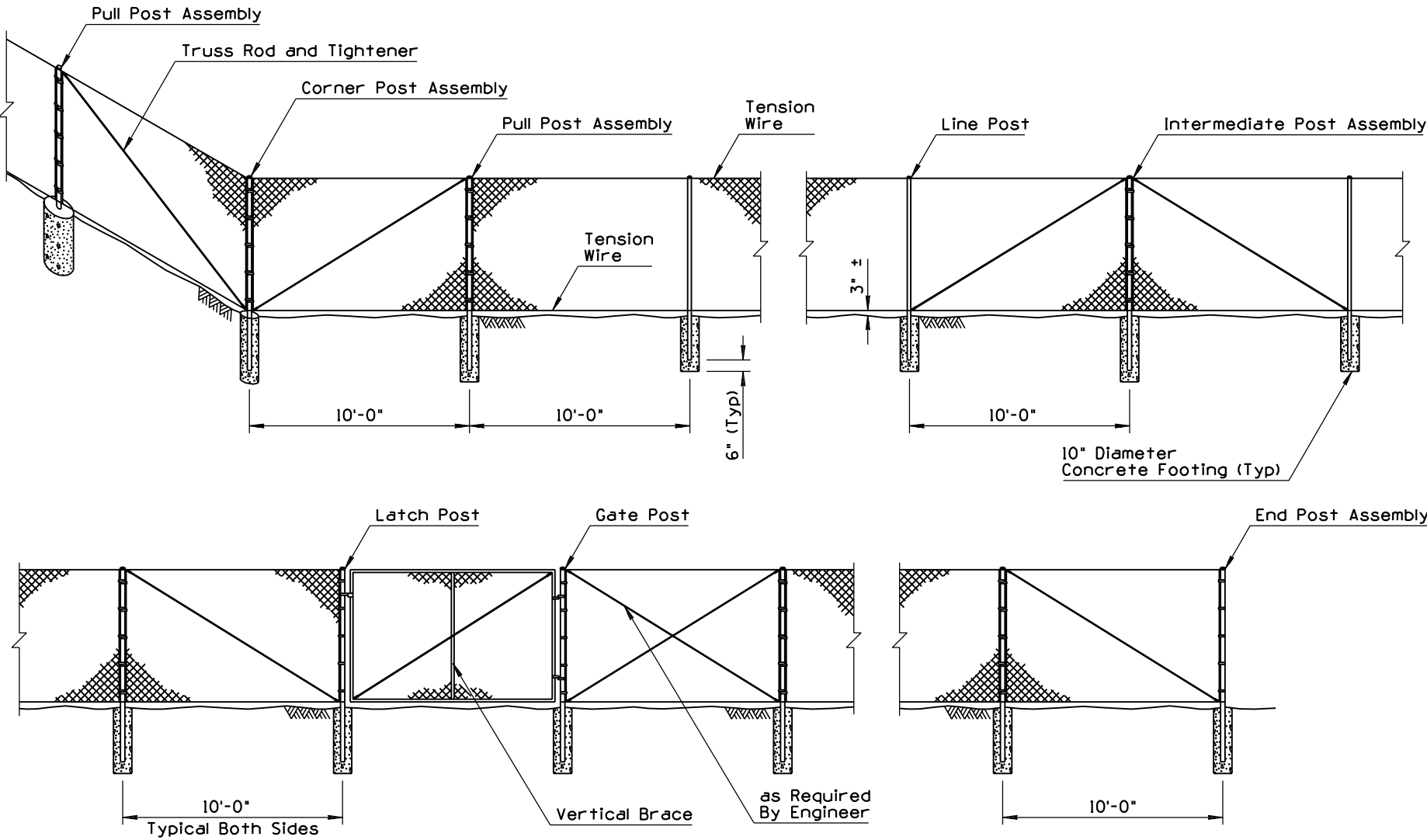
DETAIL E
FENCE CONNECTION TO WINGWALL

GENERAL NOTES

- Post assemblies shall consist of an upright angle 2 1/2"x2 1/2"x1/4" at 4.10 lbs/ft, and brace angles 2"x2"x1/4" at 3.19 lbs/ft.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① FENCE MISCELLANEOUS DETAILS	DRAWING NO. C-12.10 Sheet 5 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



TYPICAL CHAIN LINK FENCE INSTALLATION - TYPE 1 SHOWN

①

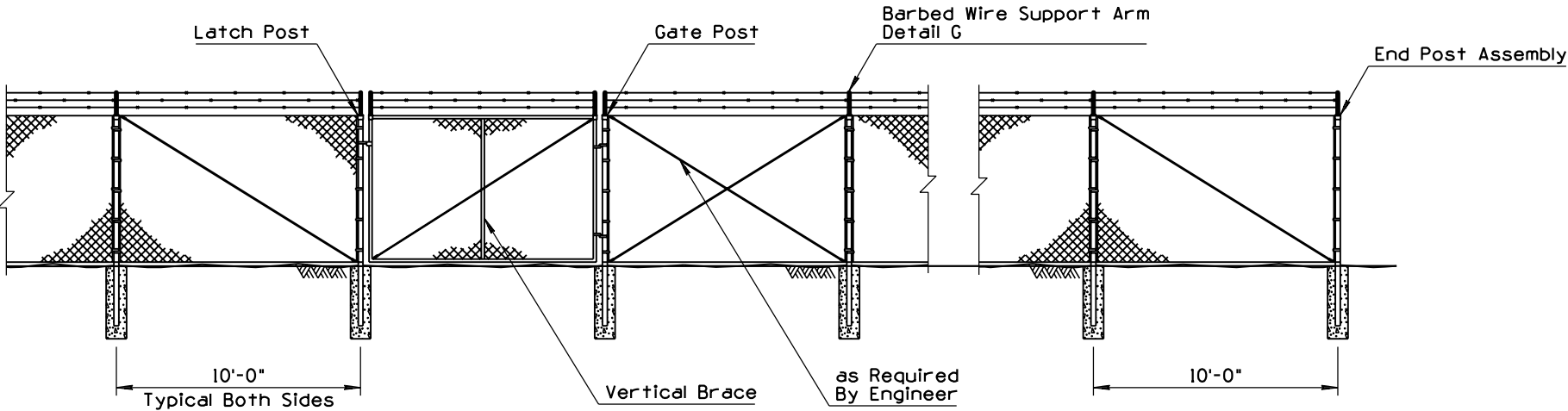
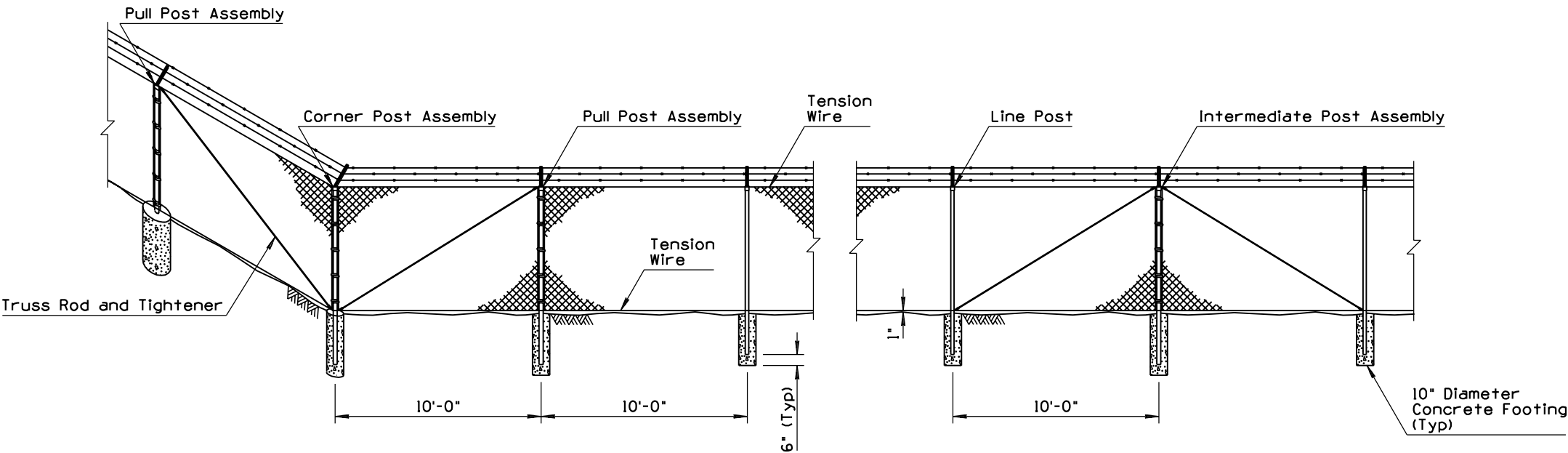
TYPICAL POST DIMENSIONS								
Fabric Height (In)	Corner, End, Intermediate, Gate, Latch and Pull Posts				Line Posts			
	Length (Ft-In)	Round	Roll Formed (In)		Length (Ft-In)	Round	Roll Formed	
		(OD) (In)	⌒	□		(OD) (In)	H-Section (In)	□ (In)
36	6-0	2.375	3.50 x 3.50	2.25 x 1.70	5-6	1.900	1.875 x 1.625	1.875 x 1.625
48	7-0	2.375	3.50 x 3.50	2.25 x 1.70	6-6	1.900	1.875 x 1.625	1.875 x 1.625
60	8-0	2.375	3.50 x 3.50	2.25 x 1.70	7-6	1.900	1.875 x 1.625	1.875 x 1.625
72	9-0	2.375	3.50 x 3.50	2.25 x 1.70	8-6	1.900	1.875 x 1.625	1.875 x 1.625
Over 72	Height +3-0	2.875	3.50 x 3.50	2.50 x 2.50	Height +2-6	2.375	2.250 x 2.000	1.875 x 1.625

GENERAL NOTES

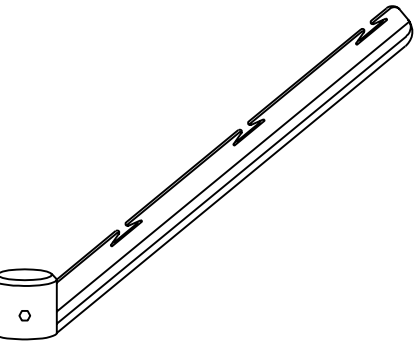
1. Posts shall be round, H-section, or roll-formed and shall conform to the nominal dimensional requirements shown on the plans. Dimensional tolerances for all shapes shall be according to ASTM A500. In addition, the material of which posts are fabricated shall have a nominal thickness, before galvanizing, of not less than 0.111" for line posts and 0.130" for terminal posts.
2. Chain link fabric shall be either zinc-coated or aluminum-coated steel wire fence fabric. Zinc-coated steel fabric shall conform to the requirements of ASTM A392, Class 1 coating. Aluminum-coated steel fabric shall conform to the requirements of ASTM A491, with a minimum weight of coating of 0.40 ounce per square foot of wire surface area. Fabric shall be 11 gauge for all fence fabric 60" or less in height and shall be 9 gauge for fabrics greater than 60" in height.
3. Tension wires shall be 7 gauge (0.177" diameter) coil spring steel wire with a minimum tensile strength of 75,000 PSI and shall be zinc-coated or aluminum-coated.
4. Truss rods shall be 3/8" diameter adjustable rods. Truss tighteners shall have a strap thickness of not less than 1/4".
5. Stretcher bars shall be 3/6" by 3/4" steel flat bars. Stretcher bar bands shall be 1/8" by 1" preformed steel bands.
6. Bottom tension wire shall be 3" from top of crown on concrete footings.
7. Intermediate post assemblies shall be spaced at 500' intervals or midway between pull posts when the distance between such posts is less than 1,000' and more than 500'.
8. See Sheet 3 of 3 for typical fence location.

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK TYPE 1	DRAWING NO. C-12.20 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



TYPICAL CHAIN LINK FENCE INSTALLATION - TYPE 2 SHOWN

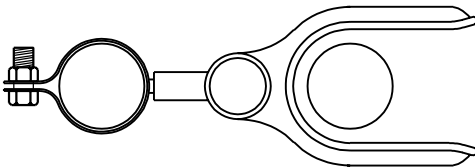
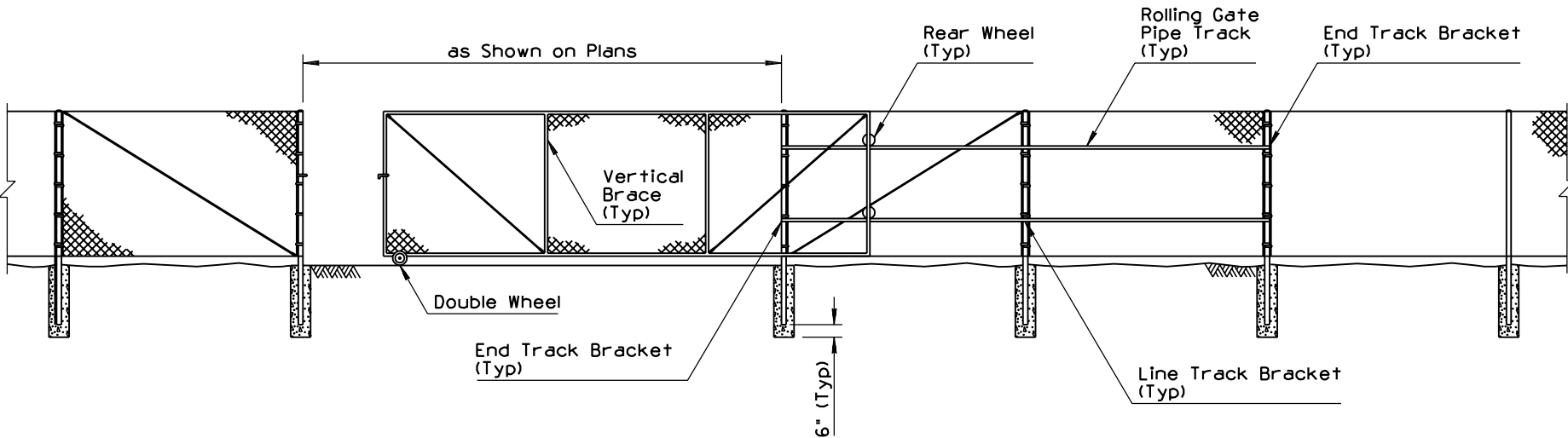


DETAIL G
BARBED WIRE SUPPORT ARM

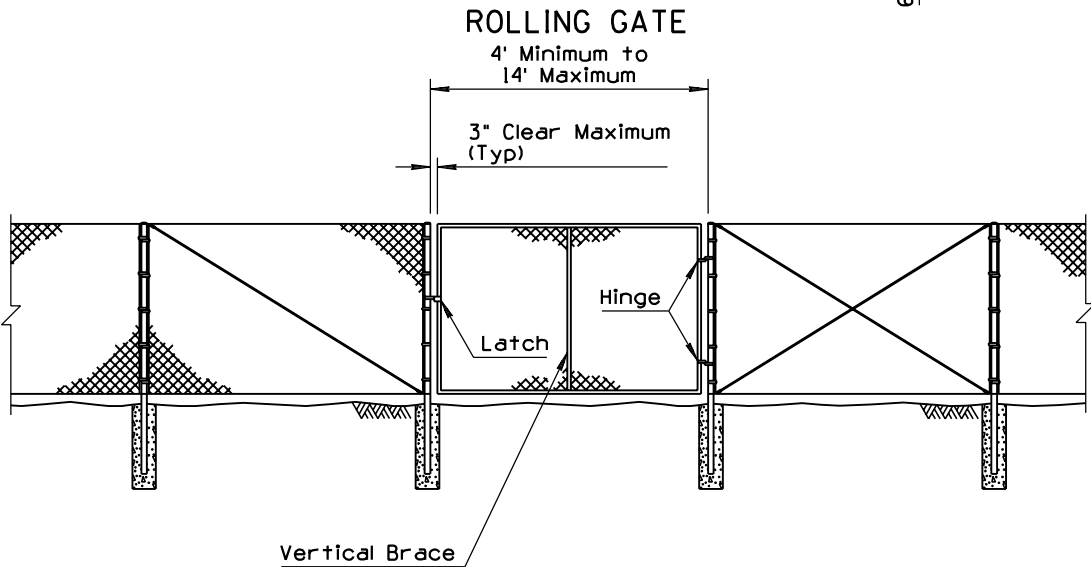
TYPICAL POST DIMENSIONS								
Fabric Height (In)	Corner, End, Intermediate, Gate, Latch and Pull Posts				Line Posts			
	Length (Ft-In)	Round	Roll Formed		Length (Ft-In)	Round	H-Section (In)	Roll Formed
		(OD) (In)	□ (In)	□ (In)		(OD) (In)		□ (In)
72	8-6	2.375	3.50 x 3.50	2.50 x 2.50	8-0	1.900	1.875 x 1.625	1.875 x 1.625

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK TYPE 2	DRAWING NO. C-12.20 Sheet 2 of 3

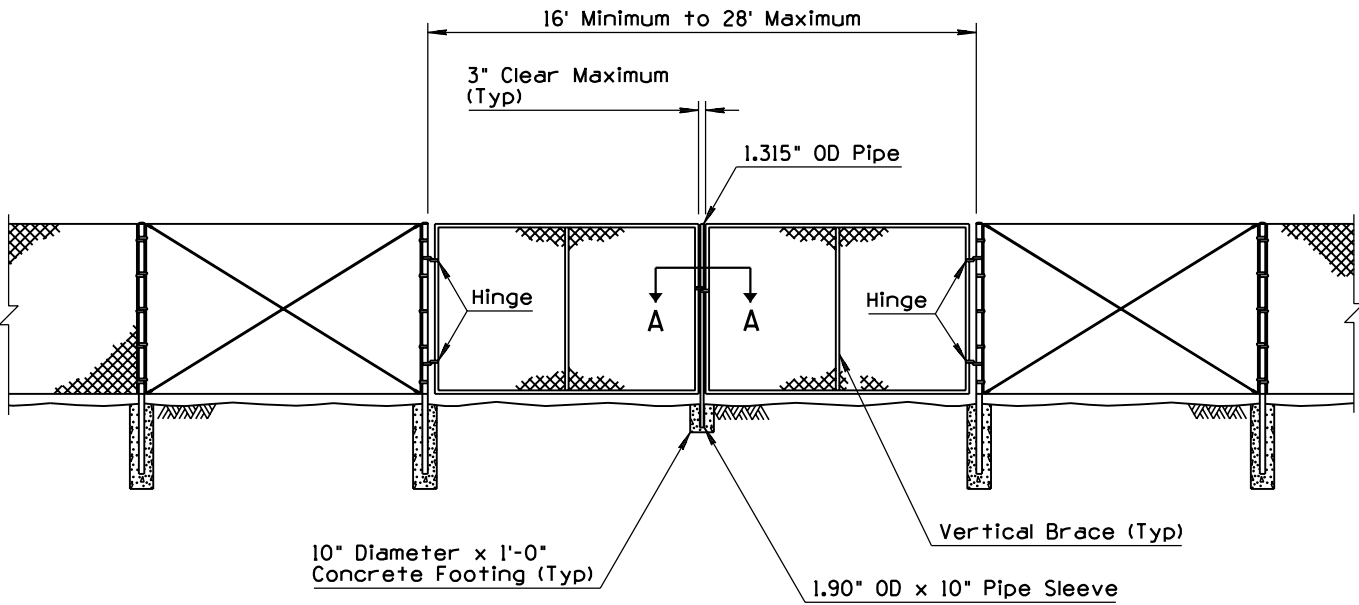
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



SECTION A-A
DOUBLE GATE LATCH ASSEMBLY



SINGLE GATE

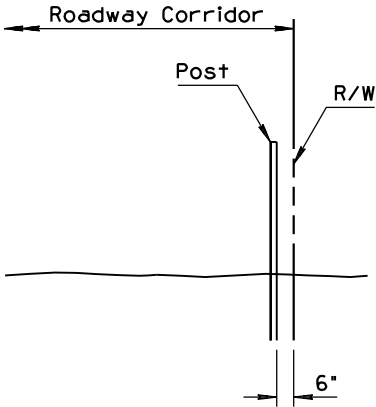


DOUBLE GATE

①

TYPICAL GATE DIMENSIONS									
SINGLE AND DOUBLE SWING GATES						ROLLING GATES			
Gate Width (Ft)	Vertical Braces	Gate Post Size	Gate Width (Ft)	Vertical Braces	Gate Post Size	Gate Width (Ft)	Number of Equally Spaced Vertical Braces	Tension Rods Per Braced Panel	Gate Post Size
6' Ht or Less		OD (In)	Over 6' Ht		OD (In)				OD (In)
3 to 8	0	2.875	3 to 8	0	2.875	6 to 13	1	0	2.875
8 to 16	1	4.000	8 to 16	1	4.000	13 to 16	1	1	2.875
16 to 18	2	4.000				16 to 21	2	1	2.875
						21 to 27	2	1	2.875
						28 and Larger	3	1	2.875

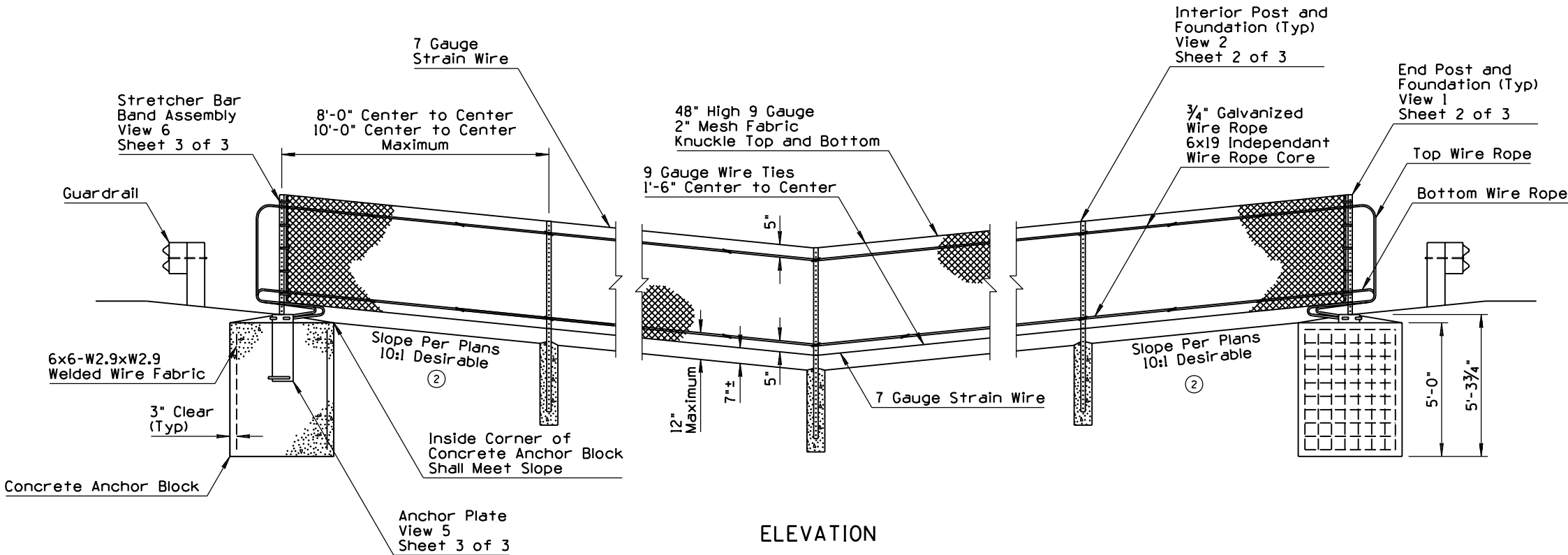
GATES FOR CHAIN LINK FENCE - TYPE 1 SHOWN
(Type 2, With Barbed Wire Typical)



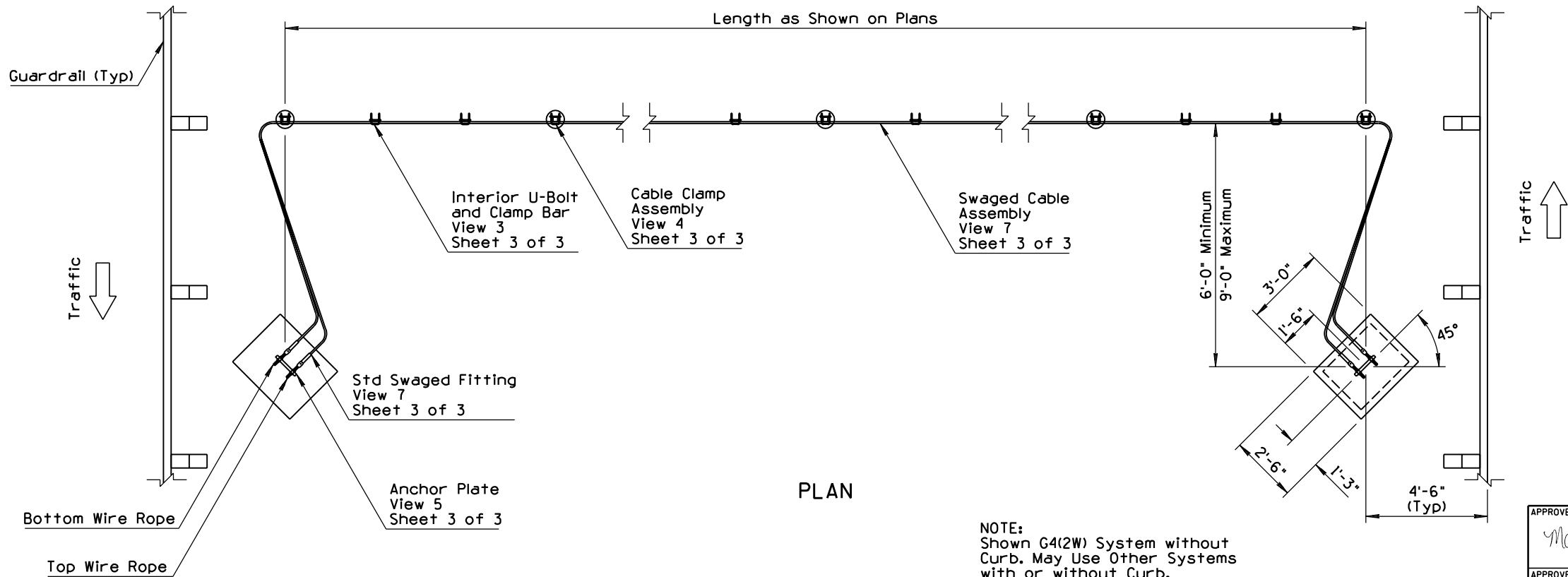
TYPICAL FENCE LOCATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK GATES	DRAWING NO. C-12.20 Sheet 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REVISED SLOPE CRITERIA	RLF	9/04
3			
4			



ELEVATION



PLAN

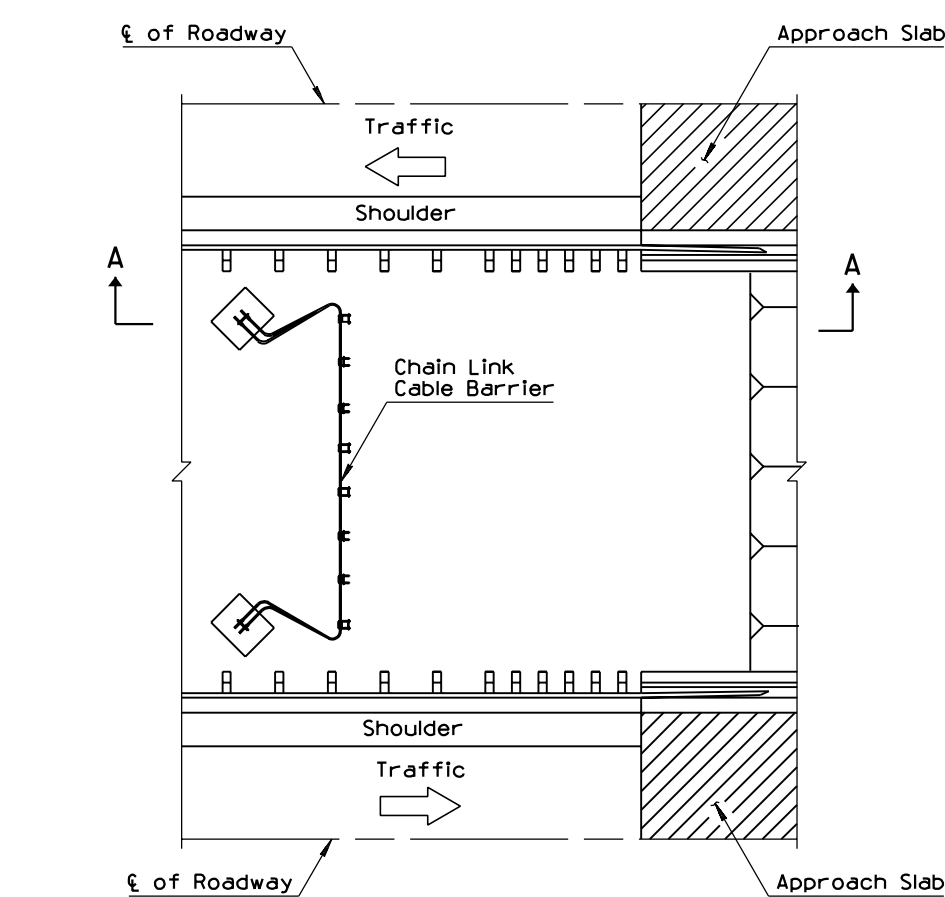
NOTE:
Shown G4(2W) System without
Curb. May Use Other Systems
with or without Curb.

GENERAL NOTES

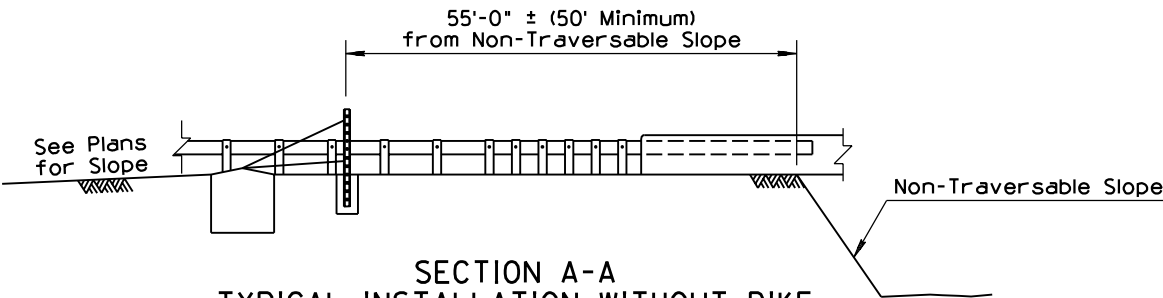
- All concrete shall be Class S, f'c=4000 PSI.
- All bolts, nuts, washers and fittings shall meet the dimensional requirements of the American National Standards Institute, unless otherwise designated and shall be galvanized in accordance with ASTM A153.
- Galvanized swaged fitting and U-Bolt shall conform to ASTM A449.
- The 3/4" galvanized wire rope shall conform to AASHTO M30 Class B, Type 2.
- The wire fabric, ties, bands, stretcher bars, and other fittings and hardware shall conform to AASHTO M181.
- The wire fabric fence shall follow contour of the graded median.
- The excavation for the concrete anchor blocks shall be to neat lines. Maximum excess shall be 3".
- Perforated posts shall be square tube formed from 0.105" USS gauge ASTM A366/A366M cold rolled carbon steel. The square tubes shall be welded directly in the corner by high frequency resistance welding or equal. The posts to be externally scarfed to agree with standard corner radii of 5/32" ± 1/16".
- Perforated posts shall be galvanized to the requirements of ASTM A653/A653M. Coating designator shall be Z275.
- The cables shall have enough tension to prevent sagging. The location of the concrete anchor blocks may also be varied to provide enough tension to help prevent sagging.
- Two interior U-bolt and clamp bars shall be spaced at 1/3 of the distance between posts.
- See Standard Drawing C-12.20 for 48" fabric details.
- An alternate to rectangular concrete anchor block shall be a 36" diameter round footing with an additional depth of 4".
- The median approach grade within 100'± of the Chain Link Cable Barrier should not exceed a grade break of 10 percent.

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK CABLE BARRIER ①	DRAWING NO. C-12.30 Sheet 1 of 3

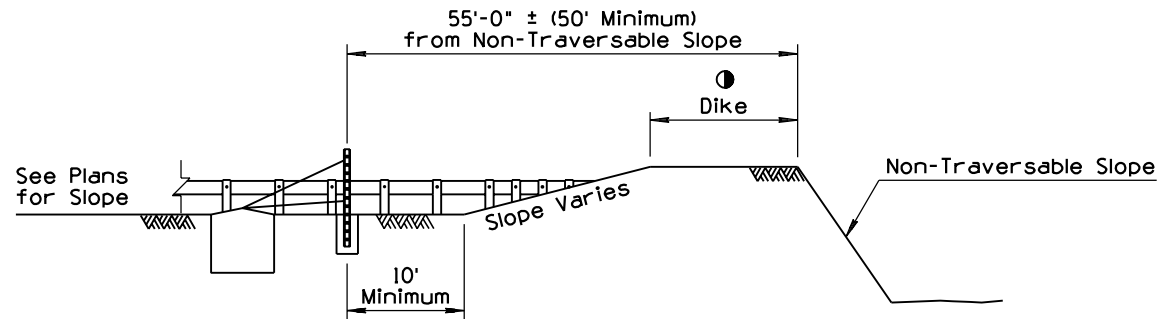
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED DESIGNATION	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



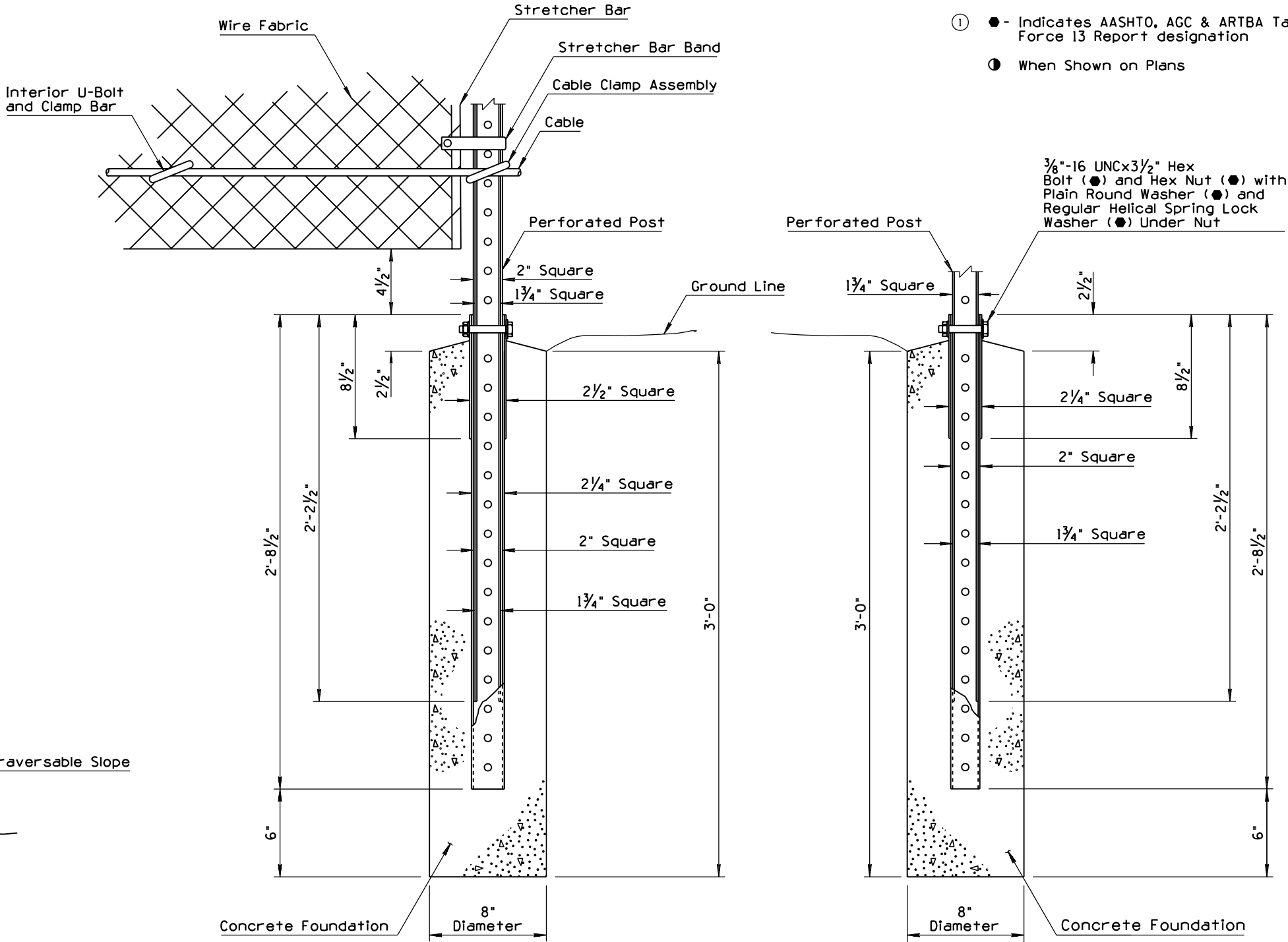
PLAN



SECTION A-A
TYPICAL INSTALLATION WITHOUT DIKE



SECTION A-A
TYPICAL INSTALLATION WITH DIKE

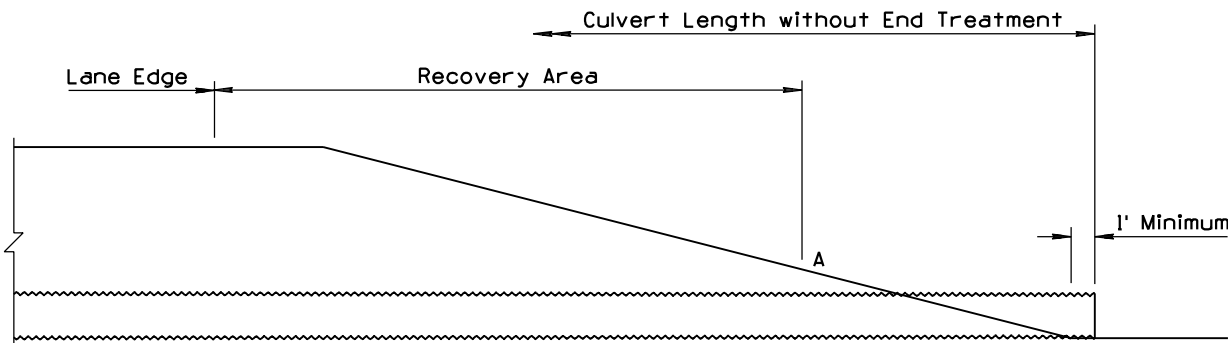


VIEW 1
END POST AND FOUNDATION

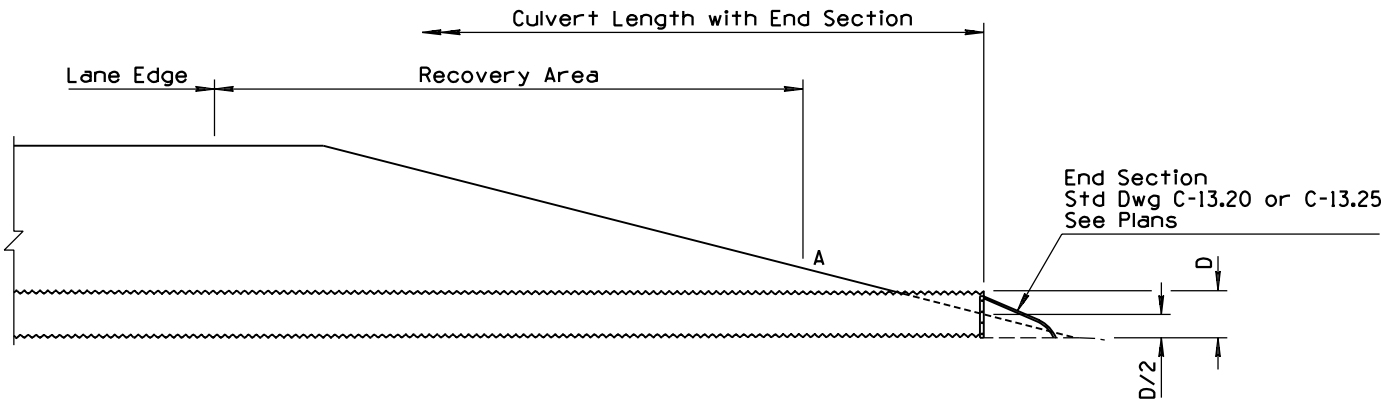
VIEW 2
INTERIOR POST AND FOUNDATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK CABLE BARRIER	DRAWING NO. C-12.30 Sheet 2 of 3

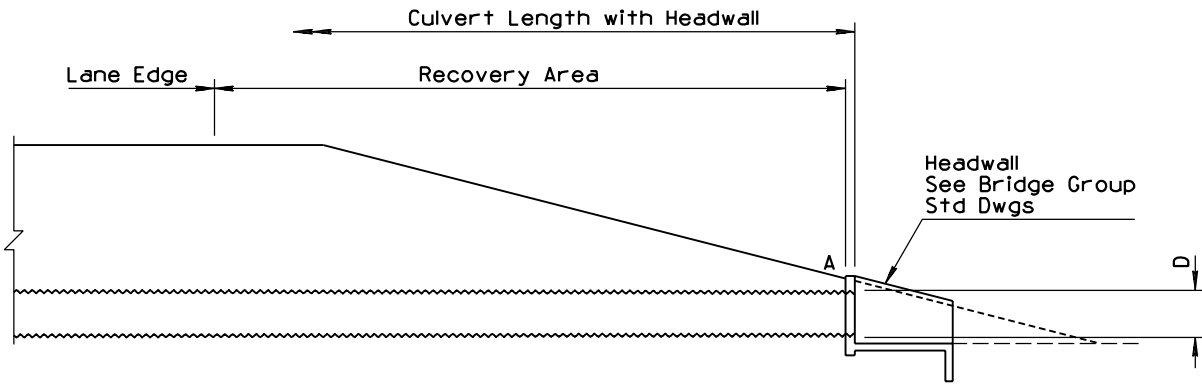
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TABLE MEASUREMENT FORMAT	RLF	9/04
2	REARRANGED STANDARD GRAPHICS	RLF	9/04
3			
4			



CULVERT INSTALLATION WITHOUT END TREATMENT



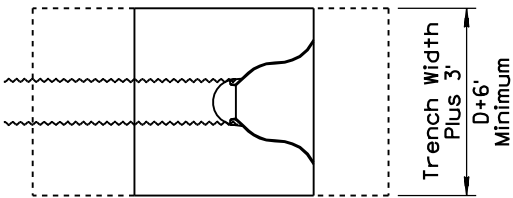
CULVERT INSTALLATION WITH END SECTION



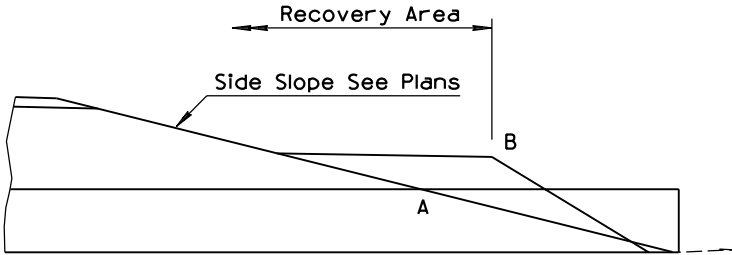
CULVERT INSTALLATION WITH HEADWALL

①

MINIMUM SPACING FOR MULTIPLE INSTALLATIONS WITHOUT END SECTIONS		
Diameter or Span (In)	Installation Type	
	Projecting (W) (In)	Headwall (E) (Ft-In)
18	12	2-6
24	12	3-0
30	15	3-9
36	18	4-6
42	21	5-3
48 to 66	(D or S)/2	OD + 3-0
72 and Over	36	OD + 3-0

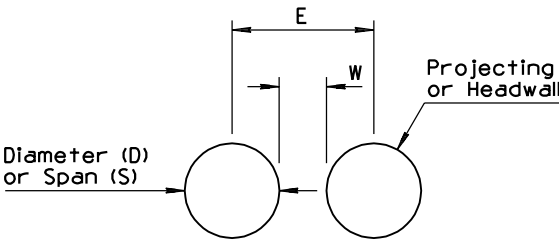


PLAN



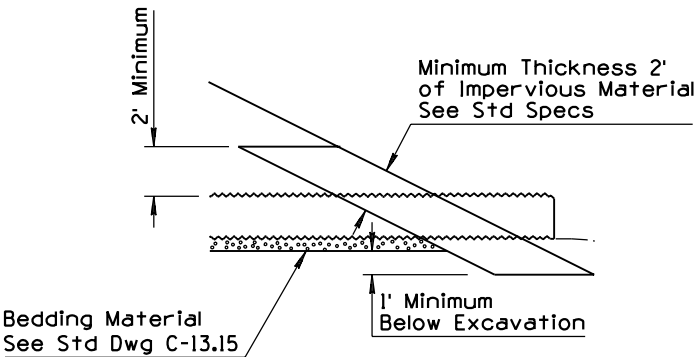
PIPE WITH BERM REQUIREMENT DETAIL

See General Note 4

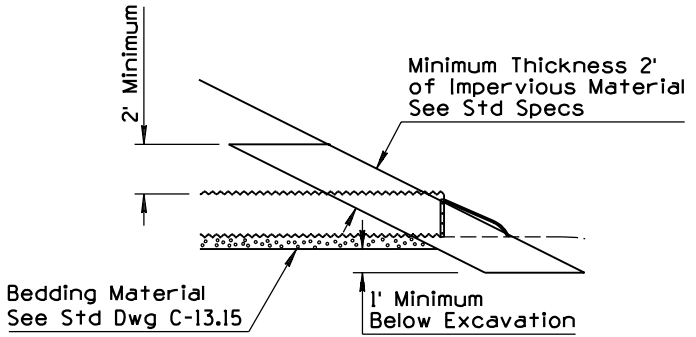


GENERAL NOTES

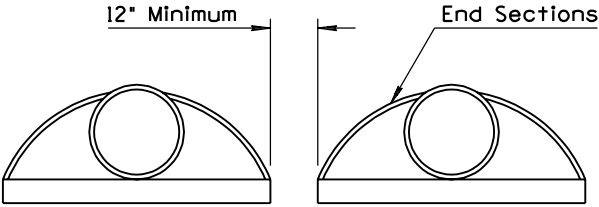
1. See plans for any required inlet and/or outlet protection.
2. Dimensions W and E apply to both non-trench and trench conditions.
3. Minimum cover over pipe culverts shall be 12", measured from the top of pipe.
4. See Pipe Berm Requirement Detail for pipe berm requirements and Std Dwg C-03.10 for installation. If Point A is within the recovery area, then a pipe berm is required and Point B is set at the edge of the recovery area.
5. Plating of slopes at pipe locations similar for pipes without end sections and for multiple pipe installations.



ELEVATION WITHOUT END SECTION



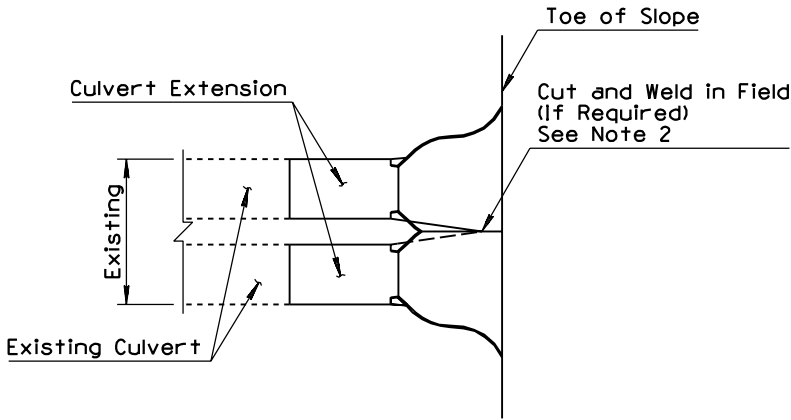
ELEVATION WITH END SECTION
PLATING SLOPES AT PIPE LOCATIONS



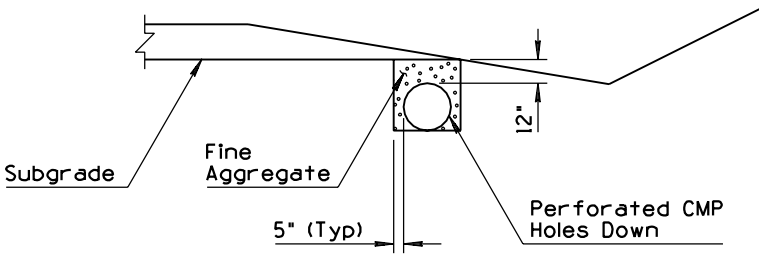
MULTIPLE INSTALLATIONS WITH END SECTIONS

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CULVERT INSTALLATION ②	DRAWING NO. C-13.10 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW GENERAL NOTE 2	RLF	9/04
2			
3			
4			

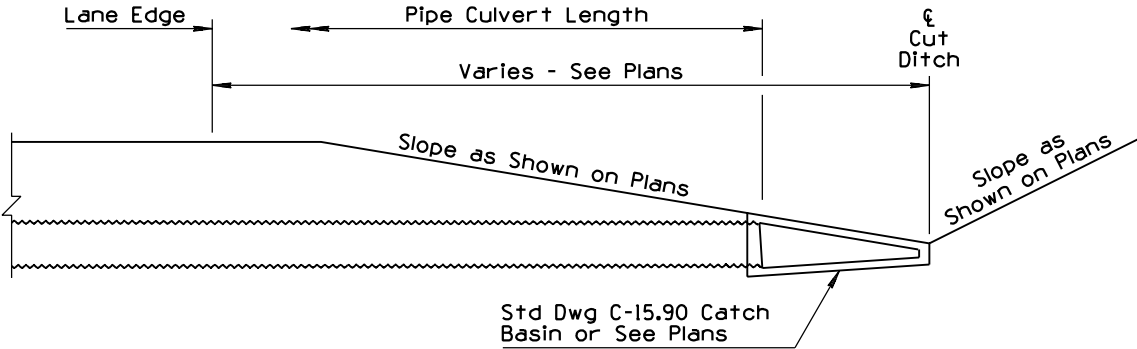


SPECIAL MULTIPLE PIPE END SECTION DETAIL
FOR PIPE CULVERT EXTENSIONS ONLY

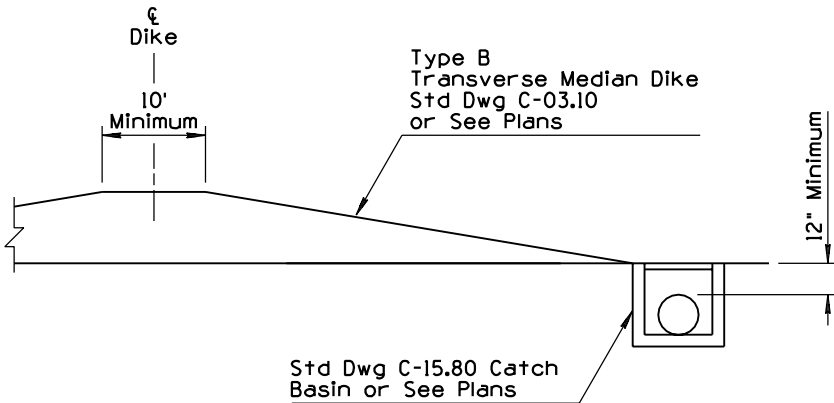


PERFORATED CMP INSTALLATION

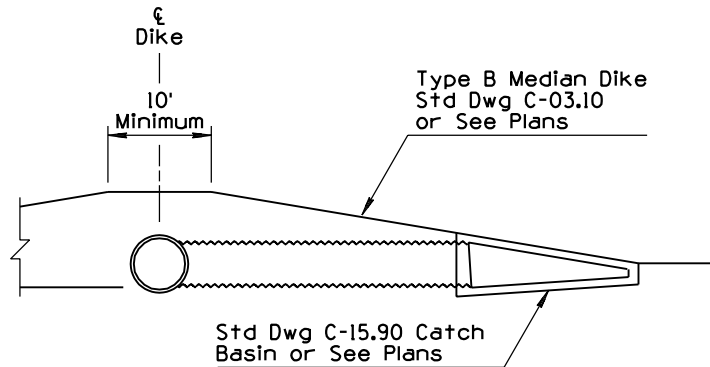
- GENERAL NOTES
1. Minimum cover over pipe culverts shall be 12", measured from the top of pipe.
 - ① 2. After welding, the damaged coating shall be cleaned by a wire brush and painted with at least one full coat of Paint Number 4, or given two coats of an approved hot asphalt paint, as directed by the Engineer.



PIPE AND CATCH BASIN INSTALLATION
AT SAG CONDITION OF CUT DITCH



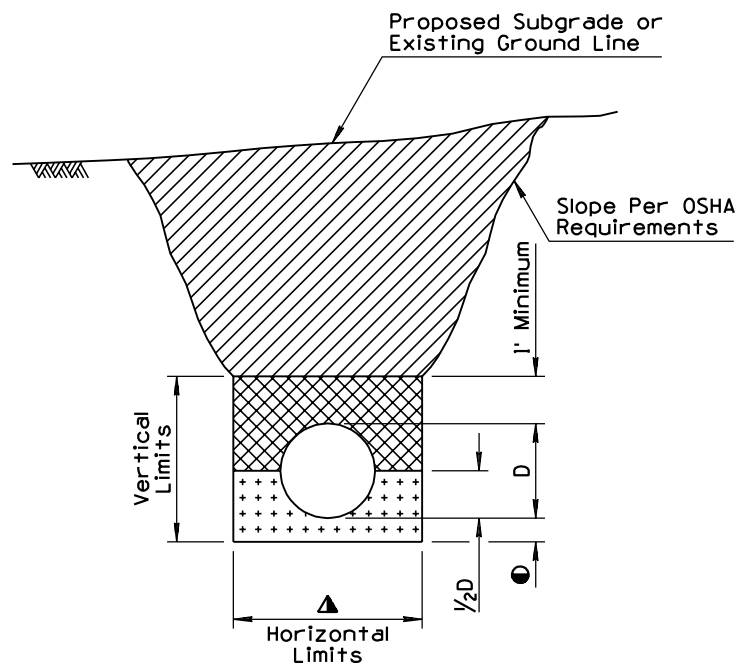
PIPE AND CATCH BASIN INSTALLATION
AT BASE OF TRANSVERSE DIKE



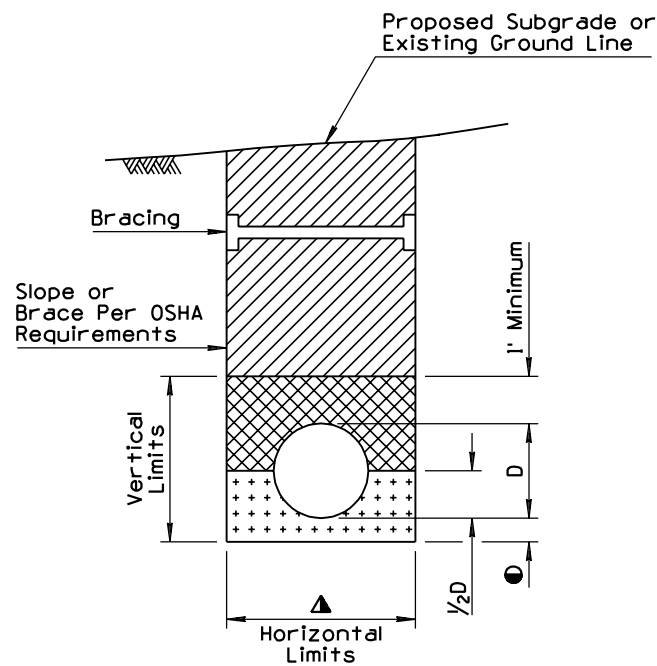
PIPE AND CATCH BASIN INSTALLATION
AT FACE OF TRANSVERSE DIKE

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CULVERT INSTALLATION	DRAWING NO. C-13.10 Sheet 2 of 2

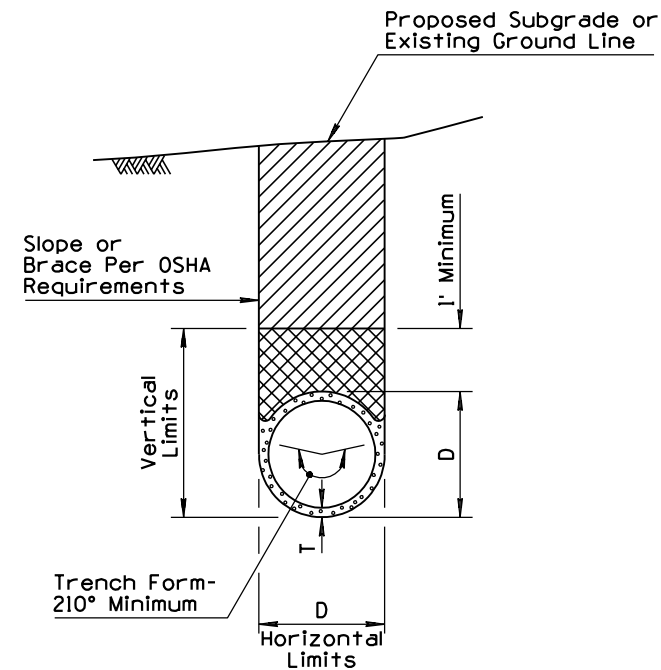
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SPECIFICATIONS	RLF	9/04
2			
3			
4			



TRENCH CONDITION
IN NATURAL GROUND OR IN EMBANKMENT
WITHOUT BRACING



TRENCH CONDITION
IN NATURAL GROUND OR IN EMBANKMENT
WITH BRACING SHOWN



TRENCH CONDITION
NRCIPCP IN NATURAL GROUND
OR IN EMBANKMENT

GENERAL NOTES

1. Pipes shall be installed either in a trench condition or in a non-trench condition in natural ground or in embankment.
2. In a trench condition, the vertical and horizontal limits shall be maintained. If horizontal limits are exceeded or the vertical limits are not maintained, a non-trench condition exists.
3. Bracing and sloping shall conform to OSHA requirements.
4. Pipe backfill may be bedding material.
5. In a non-trench condition, the embankment for pipe stability shall be constructed in lifts to the limits shown in the detail simultaneously with the bedding material and pipe backfill. If the contractor chooses to construct it as a trench condition, the embankment shall be constructed before excavating the trench.

D - Outside diameter of full circle pipe or outside dimension (span or rise) of arch, arch pipe, elliptical pipe.

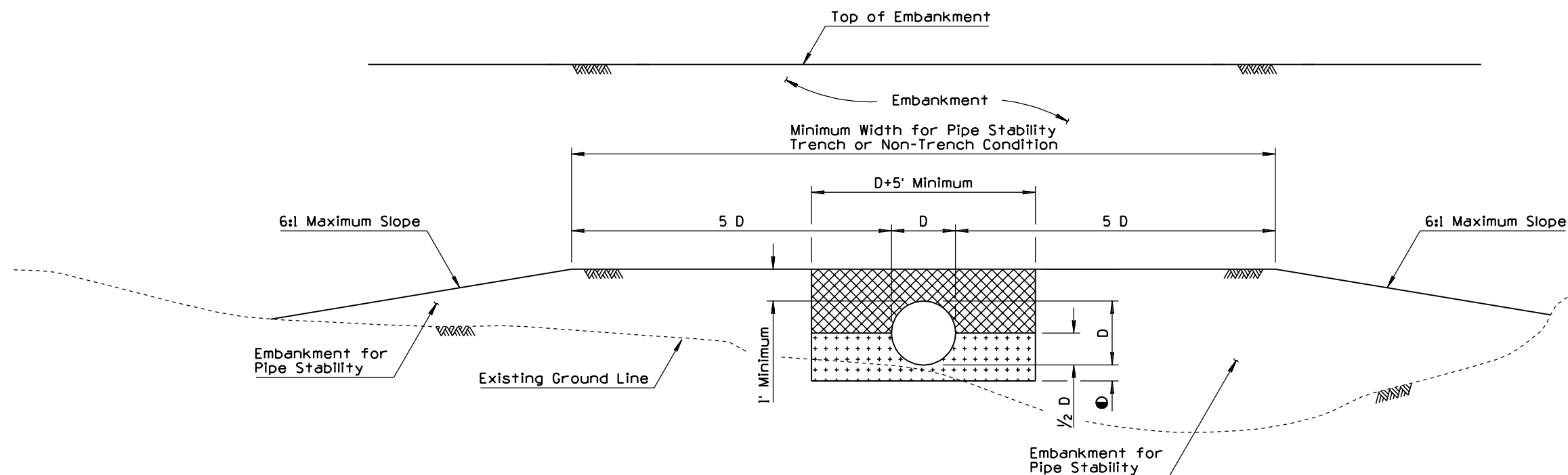
T - Minimum wall thickness for NRCIPCP: See Plans.

① ▲ For $D < \text{than } 4'$: $D + 6"$ each side, minimum
 $D + 2'$ each side, maximum

① For $D \geq \text{than } 4'$: $D + 1'$ each side, minimum
 $D + 3'$ each side, maximum

● - 6 inches except when on unyielding or unstable material. See Std Specs.

	TRENCH BACKFILL
	PIPE BACKFILL
	BEDDING



NON-TRENCH CONDITION

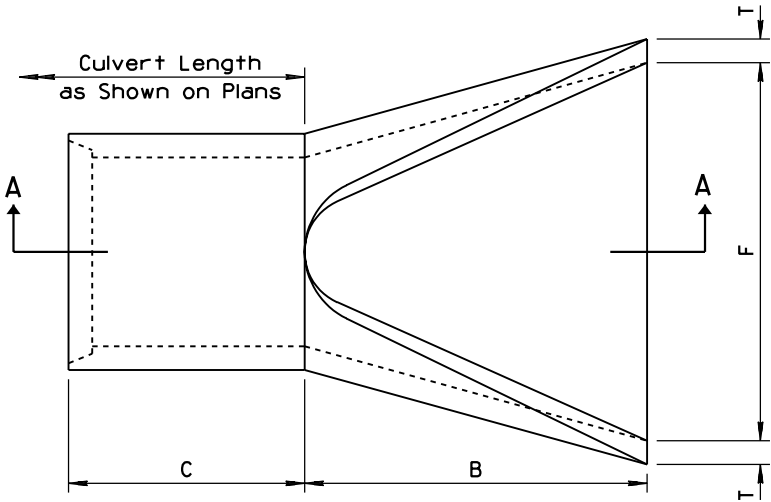
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	TYPICAL PIPE INSTALLATION	DRAWING NO. C-13.15

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW GENERAL NOTE 1	RLF	9/04
2			
3			
4			

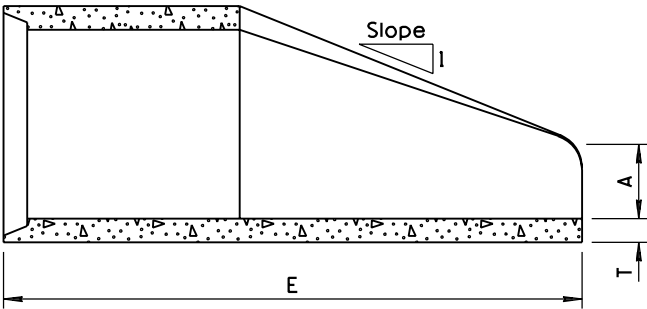
GENERAL NOTES

1. End section joint type shall match the pipe joint type.
2. Embankment slope shall be warped to match slope of end section.

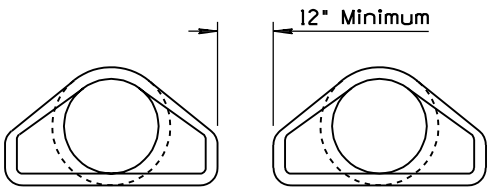
Pipe Diameter (In)	Approximate Weight (Lbs)	Dimensions (In)						Approximate Slope
		T	A	B	C	E	F	
24	1520	3	9½	43½	30	73½	48	3
27	1930	3¼	10½	49½	24	73½	54	3
30	2190	3½	12	54	19¾	73¾	60	3
36	4100	4	15	63	34¾	97¾	72	3
42	5380	4½	21	63	35	98	78	3



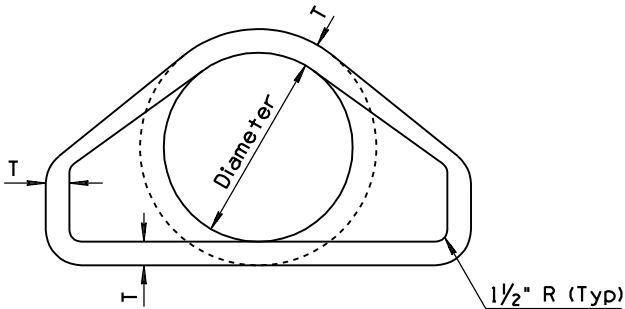
PLAN



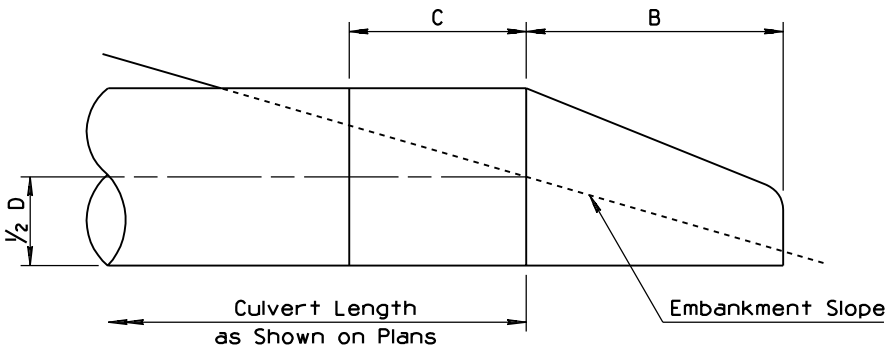
SECTION A-A



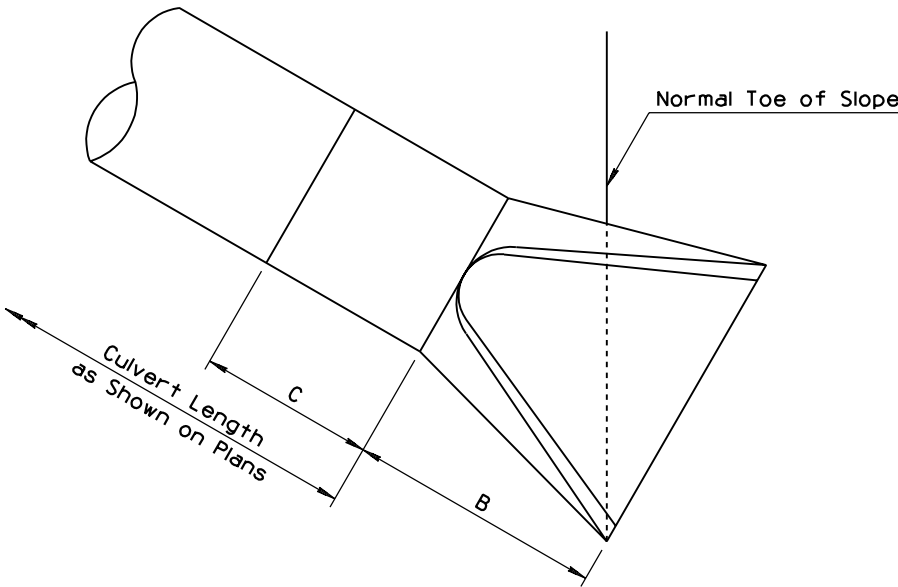
SPACING FOR MULTIPLE INSTALLATION



FRONT ELEVATION



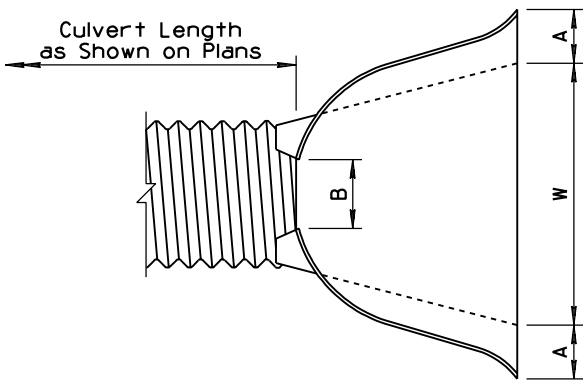
RIGHT ANGLE CULVERT



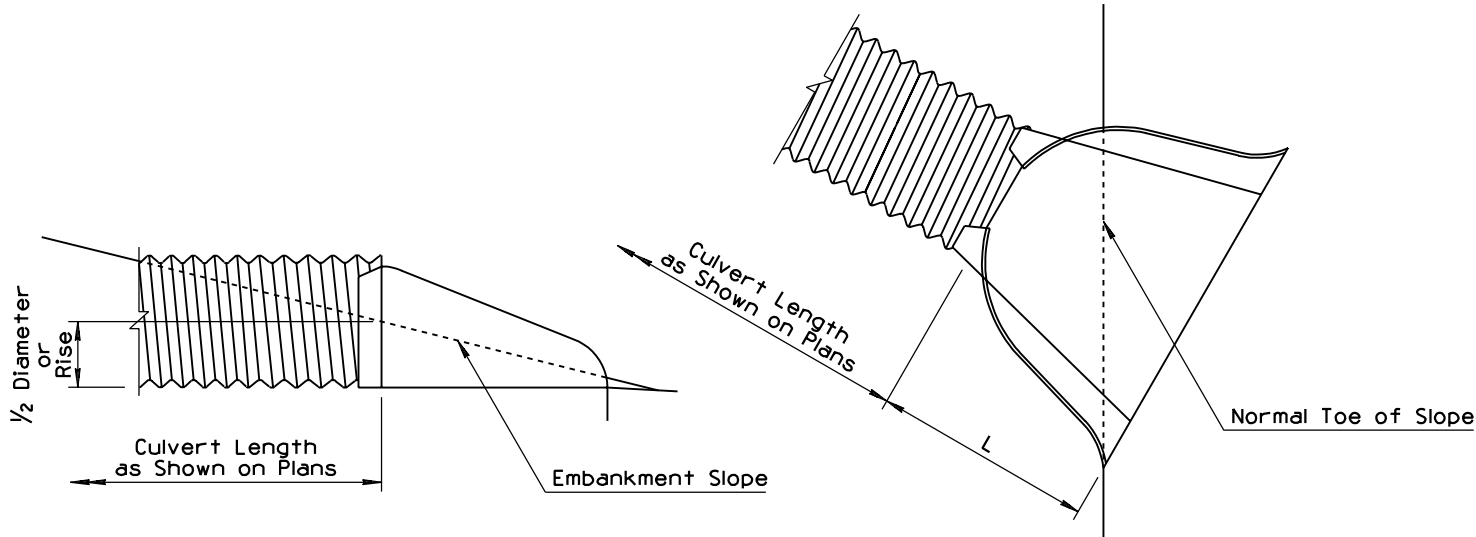
SKEWED CULVERT

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE REINFORCED CONCRETE END SECTION	DRAWING NO. C-13.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED DATA TABLE	BAF	6/98
2			
3			
4			



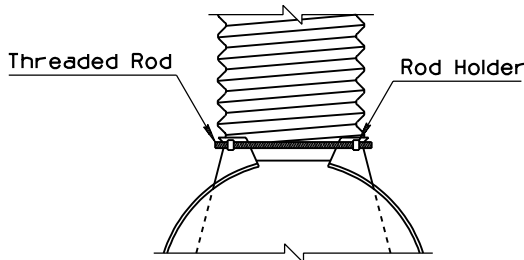
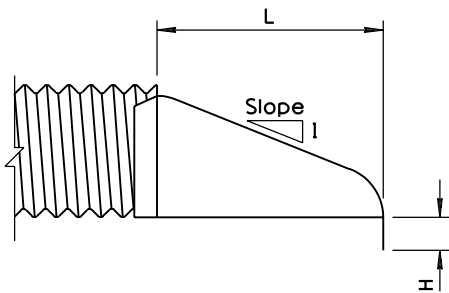
RIGHT ANGLE CULVERT



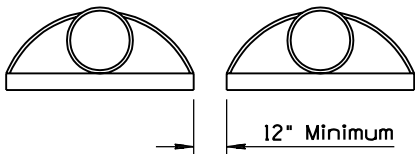
SKewed CULVERT

GENERAL NOTES

1. The end section may be joined to the pipe or connector section by bolts, rivets, dimpled bands, slip-seam bands or threaded rod type fasteners. For allowable connector types, see table.
2. The Type 1 connector is bolted or riveted. Maximum circumferential fastener spacing shall be 12" and with a minimum of 8 fasteners per joint. The Type 1 joint may be used with either annular or helical corrugations.
3. Type 2 and 3 connectors shall only be used with annular or helical pipe with a requisite number of annular corrugations.
4. Type 4 connector shall only be used with helical pipe.
5. All steel end section components shall be galvanized.
6. Toe of embankment shall be warped to match toe of skewed end section.
7. A berm shall be added to abnormal projections per Std Dwg C-13.10.
8. The foregoing applies to all cross-section configurations.

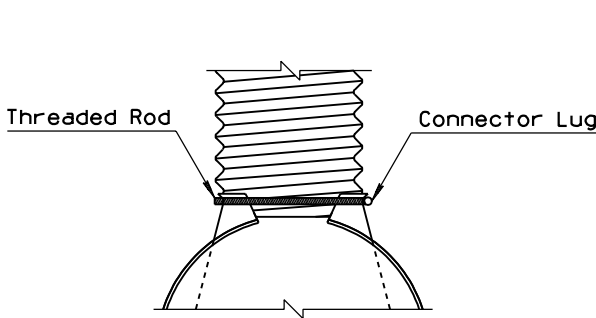


TYPE 2
THREADED ROD CONNECTIONS

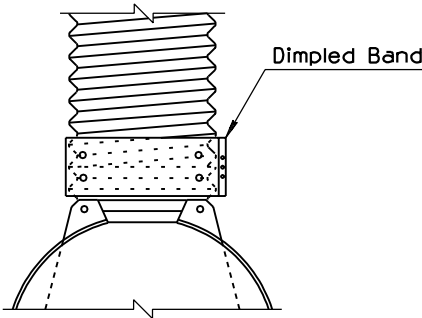


SPACING FOR MULTIPLE
INSTALLATION

Circular Pipe		Dimensions (In)							
Diameter (In)	Gauge	A ±1	B Maximum	H ±1	L ±1½	W ±2	Approximate Slope	Connection Type	
18	16	8	8	6	31	36	2½	2, 3, 4	
24	16	10	13	6	41	48	2½	2, 3, 4	
30	14	12¼	12½	8	51	57	2½	2, 4	
36	14	14½	12	9	60	72	2½	2, 4	
42	12	17	11	10½	69	84	2½	3	



TYPE 3
THREADED ROD CONNECTIONS

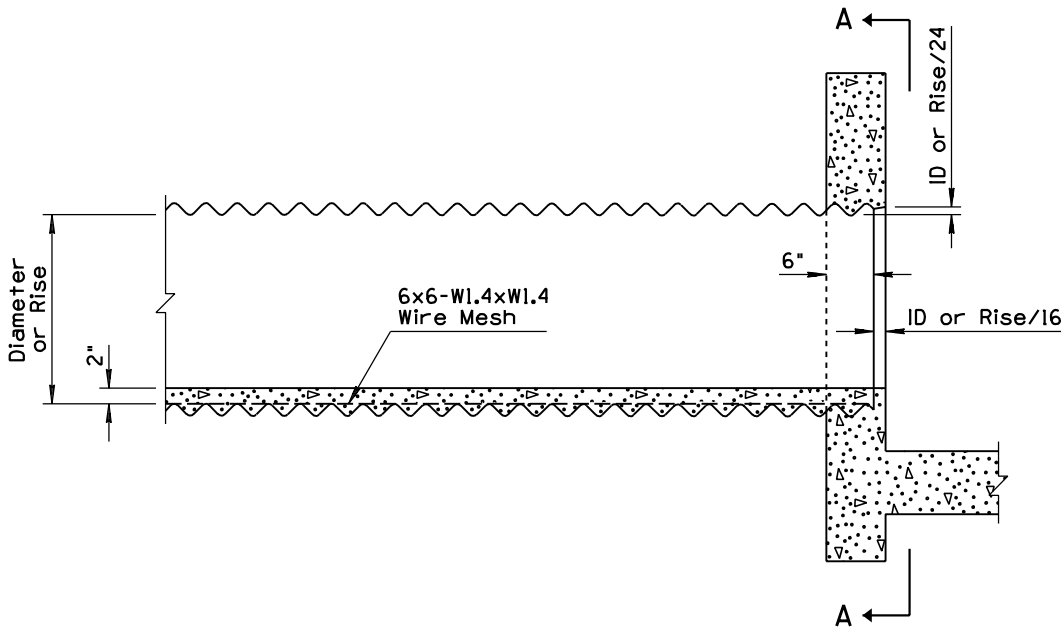


TYPE 4
DIMPLED BAND CONNECTIONS

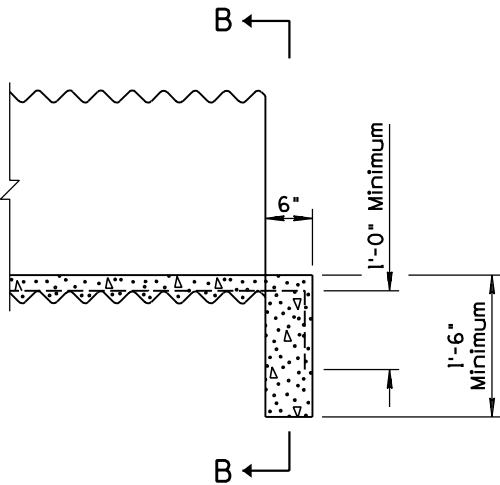
Pipe Arch			Dimensions (In)						
Span (In)	Rise (In)	Gauge	A ±1	B Max	H ±1	L ±1½	W ±2	Approximate Slope	Connection Type
21	15	16	7½	11	6	24	36	2½	2, 3, 4
28	20	16	8	16	6	32	48	2½	2, 3, 4
35	24	14	10	16	6	39	60	2½	2, 4
42	29	14	12	12	7½	46	75	2½	2, 4
49	33	12	13½	20	9	53	84	2½	3

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CORRUGATED METAL END SECTION	DRAWING NO. C-13.25

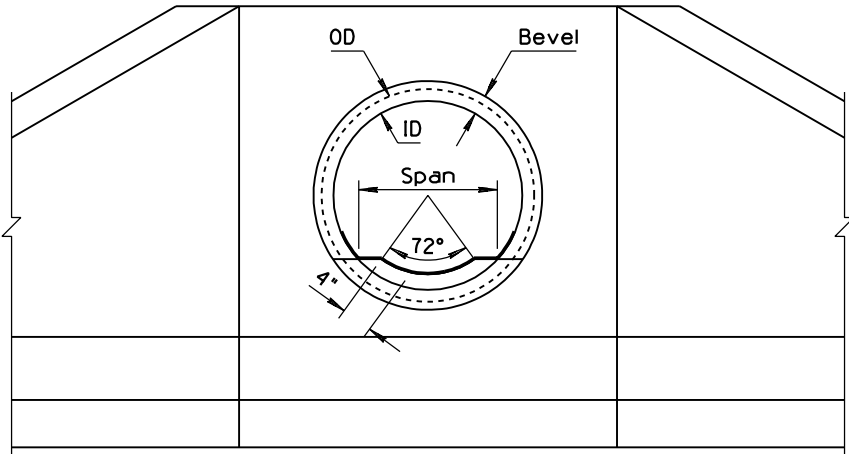
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED GENERAL NOTE 7	RLF	9/04
2			
3			
4			



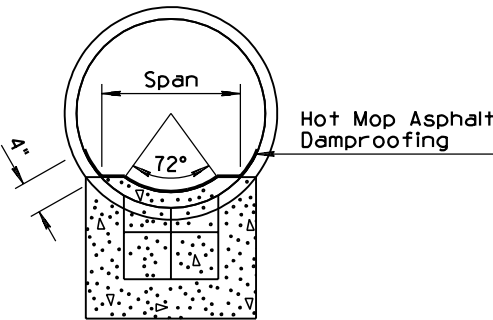
HEADWALL INSTALLATION
(SEE STANDARD DRAWING B-11.12)



PROJECTING INSTALLATION



SECTION A-A



SECTION B-B

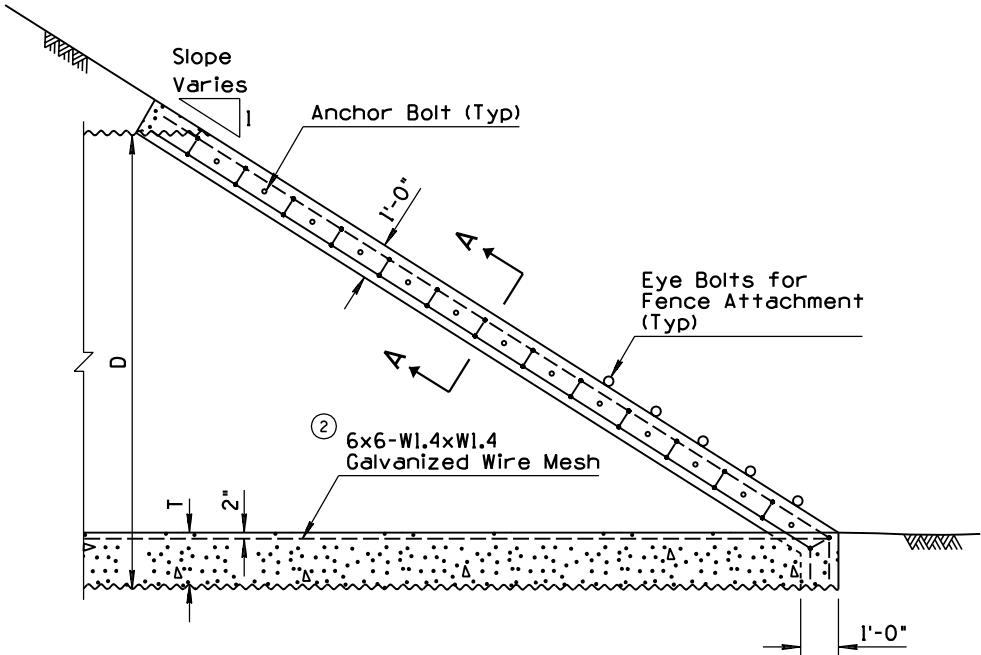
GENERAL NOTES

1. For lateral dimensions of invert paving, use 72° control for CMP and span for CMPA.
2. Paving shall be scored laterally at 1'-6" minimum intervals along the length of the pipe.
3. Use bevel on inlet headwall only.
4. Wire mesh shall be fastened or welded to corrugation crests at intervals and in a manner approved by the Engineer. Laps shall be 6" minimum.
5. Paving shall not be placed until backfilling is completed.
6. Concrete shall be Class B.

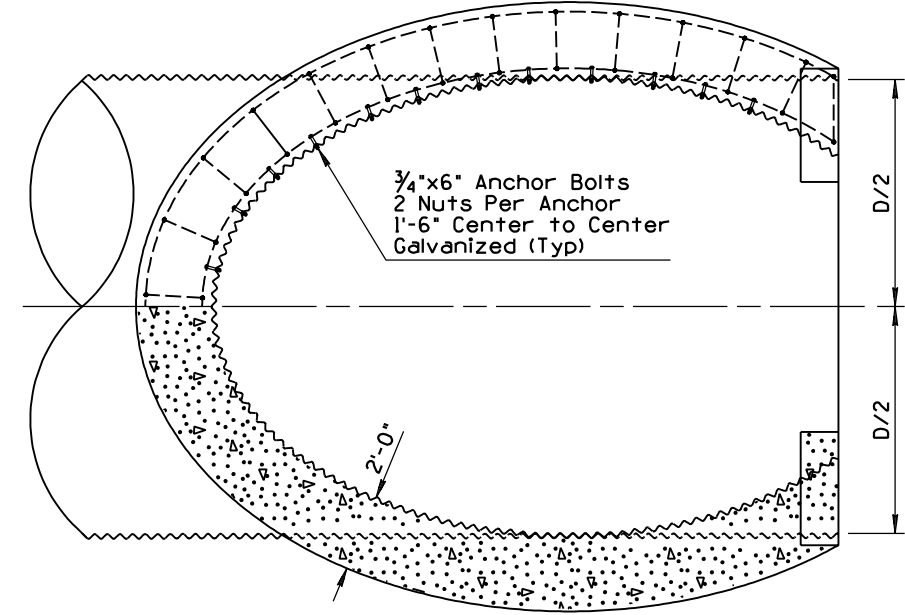
①

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	PIPE AND PIPE ARCH CORRUGATED METAL CONCRETE INVERT PAVING	DRAWING NO. C-13.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE & MEASUREMENT FORMAT	RLF	9/04
2	REVISED WIRE MESH DESIGNATION	RLF	9/04
3			
4			



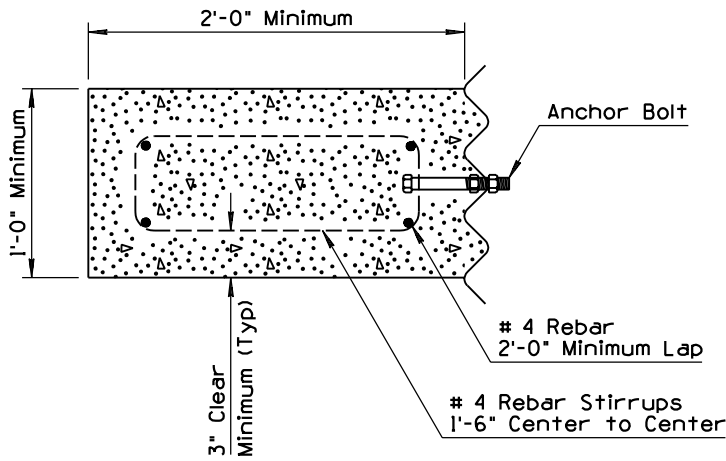
LONGITUDINAL SECTION



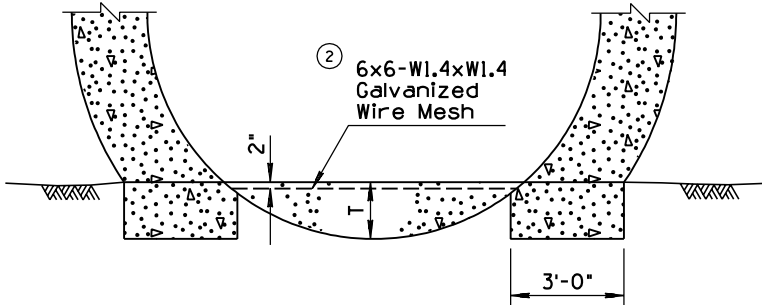
PLAN NORMAL TO SLOPE

①

	D (In)	T (In)
Combination Vehicle and Cattle Pass	144	18
Cattle Pass Only	120	6



SECTION A-A



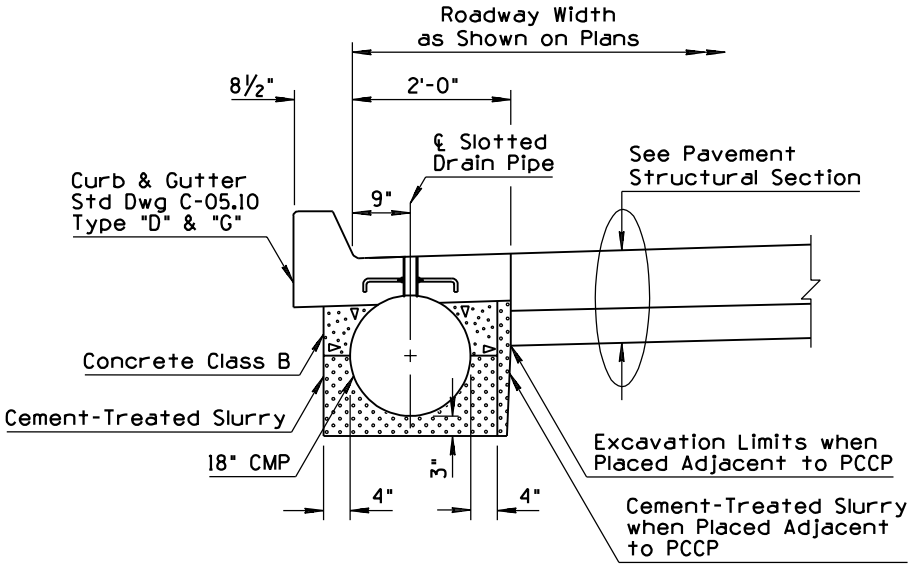
END ELEVATION

GENERAL NOTES

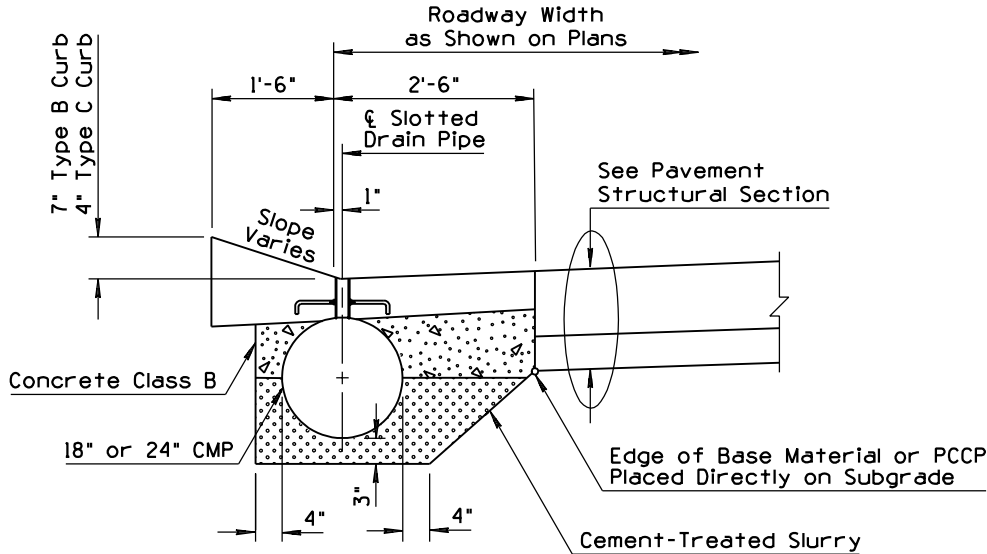
1. This end treatment is to be used only for those cattle and/or vehicle passes not used for drainage.
2. All concrete shall be Class B. An optional 12" AB invert paving base course and 6" of concrete may be used in the 144" diameter pipe.
3. Anchor bolts shall be retained in a horizontal position during pour with final tightening a minimum of 7 days after pour.
4. Pipe shall be backfilled before concrete bond beam is constructed. Minimum forming may be used.
5. Edges of wire mesh shall be fastened or welded to corrugation crests at intervals and in a manner approved by the Engineer. Laps shall be a minimum of 6".
6. For installation normal to roadway centerline only.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CATTLE/VEHICLE PASS MITERED END TREATMENT	DRAWING NO. C-13.55

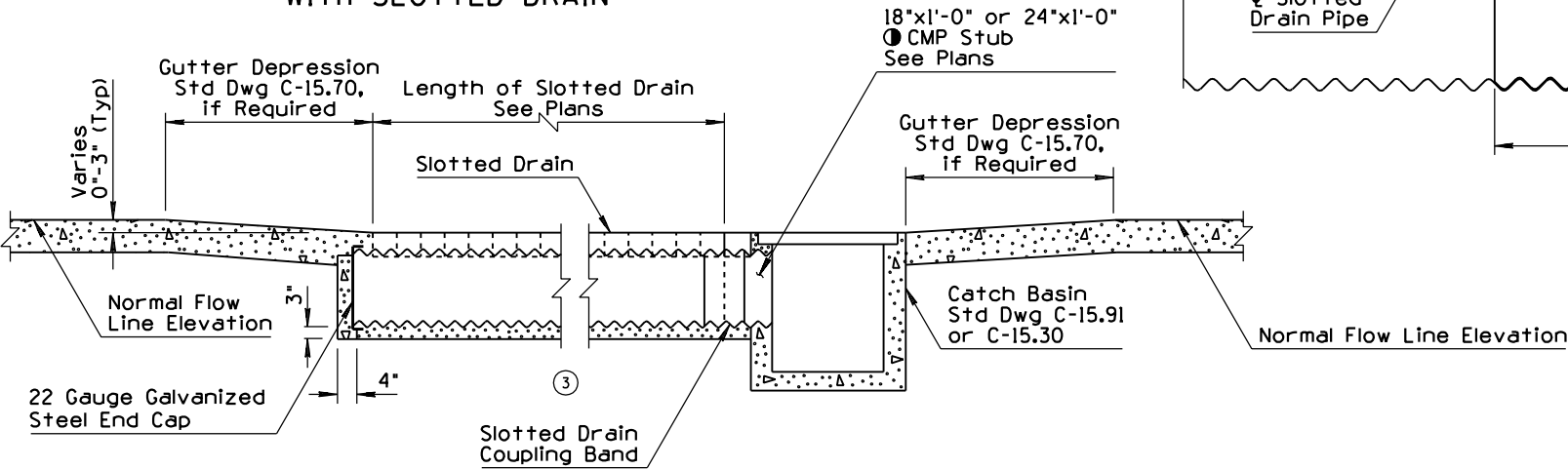
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED DESIGNATION	RLF	9/04
2	ADDED NOTE	RLF	9/04
3	REMOVED AB CLASS 2 CALLOUT	RLF	9/04
4	ADDED GENERAL NOTE 15	RLF	/04



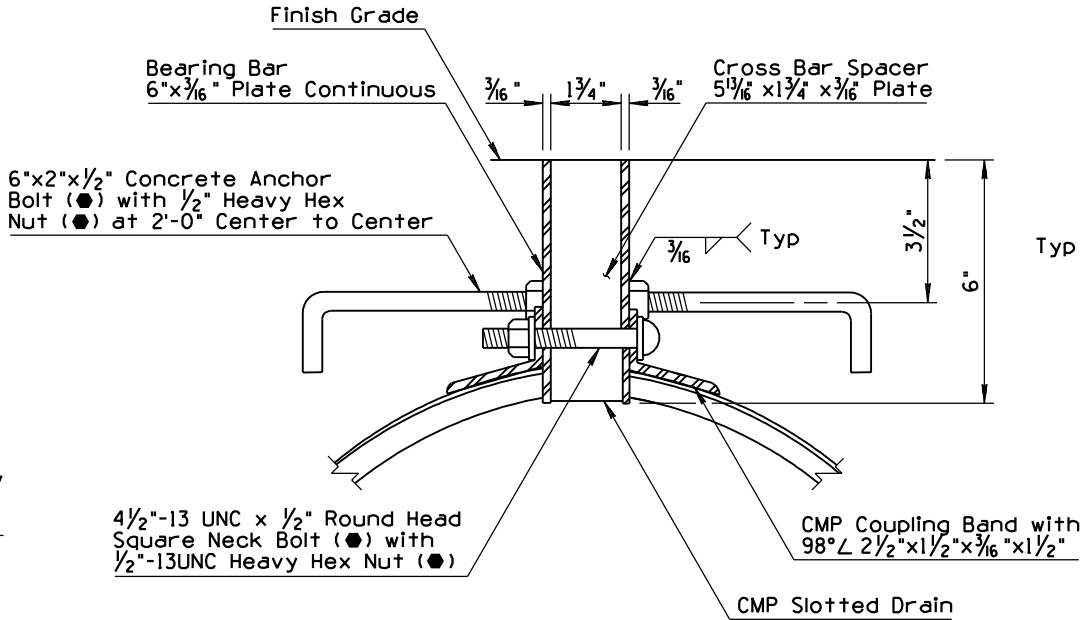
TYPE D & G CURB AND GUTTER WITH SLOTTED DRAIN



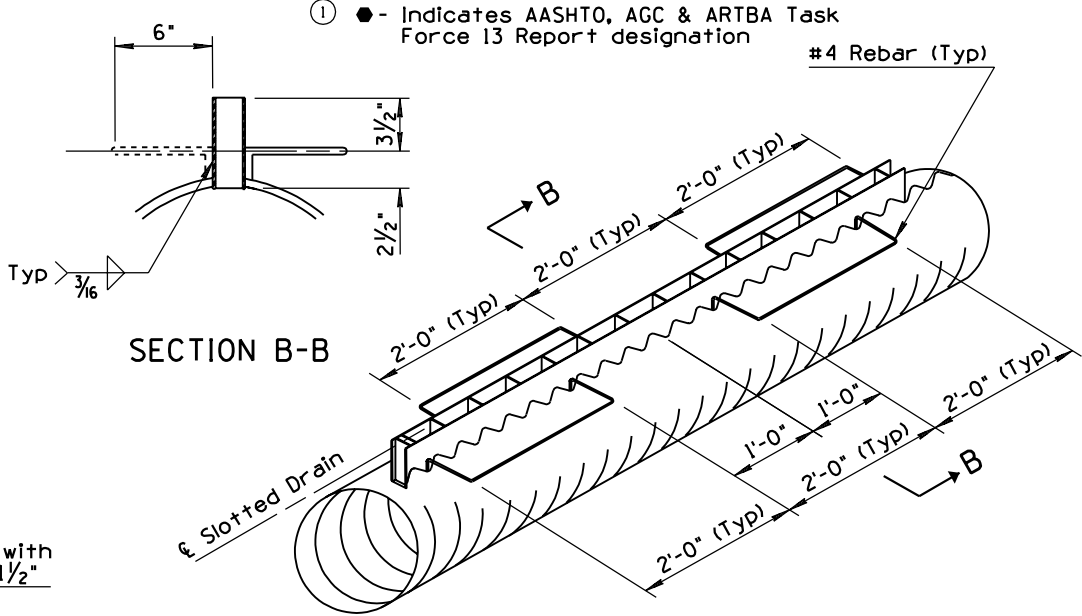
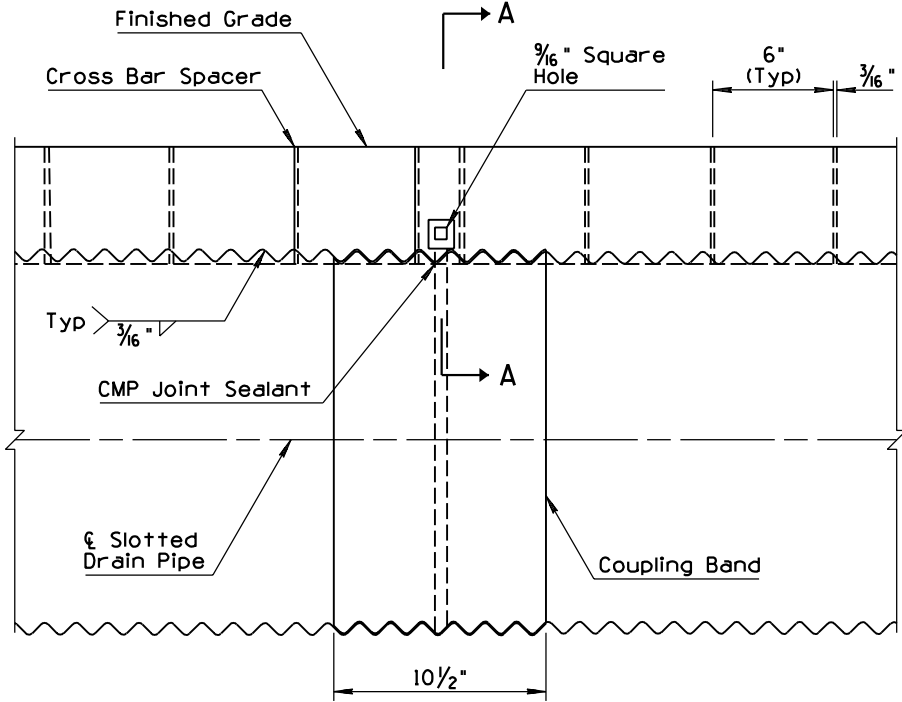
TYPE B OR C CURB AND GUTTER WITH SLOTTED DRAIN



CONNECTION OF SLOTTED DRAIN TO CATCH BASIN AND SLOTTED DRAIN END CAP



SECTION A-A

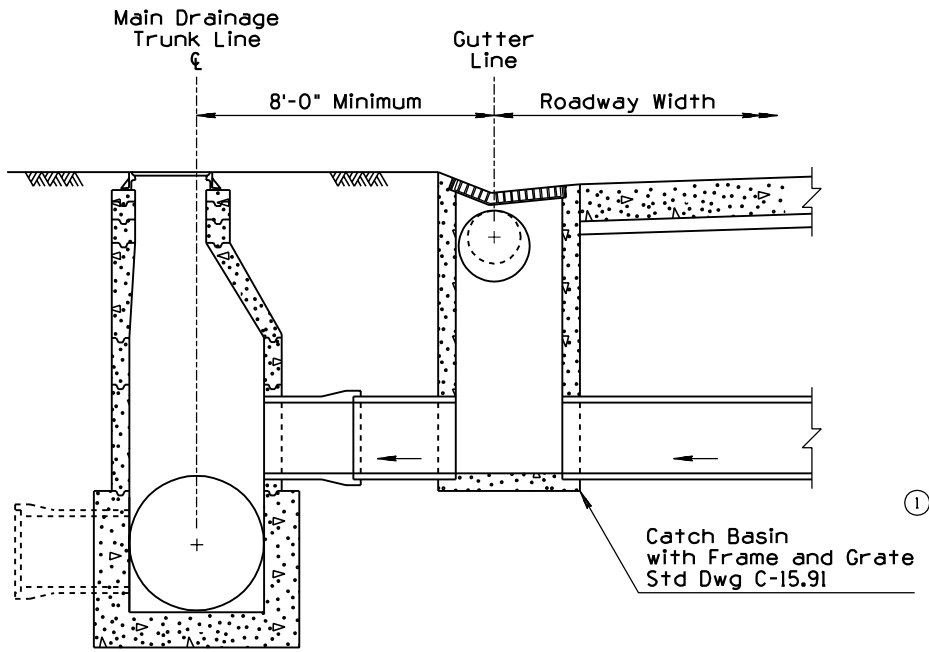


GENERAL NOTES

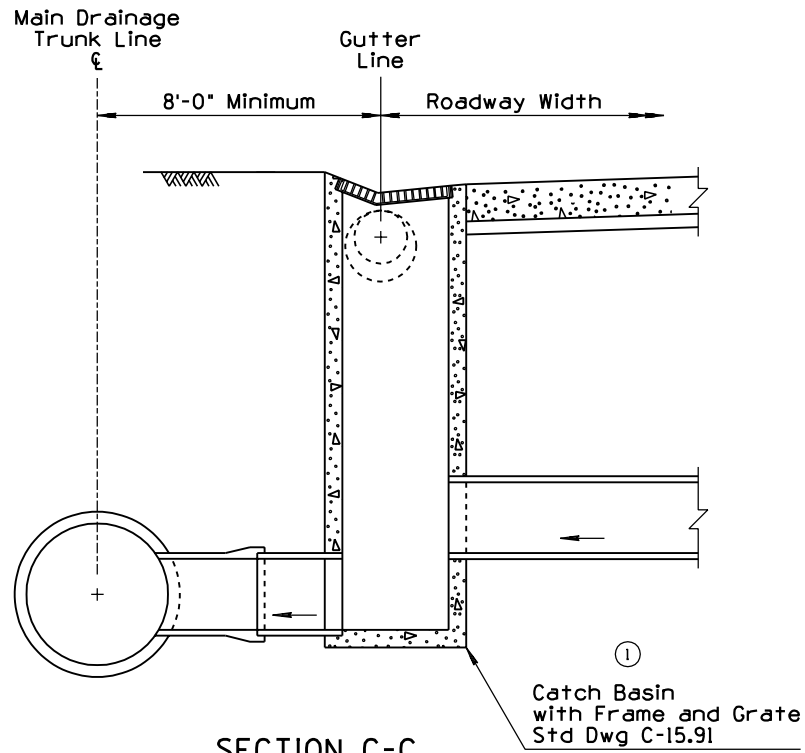
- Slotted drain pipe shall be 2 3/3"x1/2" corrugated steel pipe with a minimum wall thickness of 0.064" and shall conform to the requirements of AASHTO M36.
- All concrete shall be Class B.
- Rebar shall conform to Std Spec 1003-2.
- Structural steel shall conform to ASTM A36.
- Concrete anchors shall conform to ASTM A307 and hex nuts shall conform to ASTM A563 Grade A.
- All slotted drain pipe hardware except anchor bolts and rebar shall be given two coats of Number 1 paint.
- When annular pipe is used, apply water proof sealer before attaching coupling band.
- When helical pipe is used, it shall be formed with at least one annular corrugation at each end of each pipe section. Water proof sealer shall be applied to the annular corrugation prior to attachment of coupling band.
- Cover slot during construction with removable tape or other acceptable substitute.
- Slotted drain pipe shall be clean at the time of final acceptance.
- Concrete curb and gutter through the slotted drains shall be paid for under the respective curb and gutter items.
- Refer to curb and gutter details for dimensions and details not shown.
- Joints in concrete curb & gutter shall match adjoining PCCP and slotted drain bands.
- All welding shall be in accordance with Std Spec 604-3.06.
- Bolts or rebar may be used for concrete anchoring.
 - The 18"x1'-0" or 24"x1'-0" CMP stub shall be included in the price of respective catch basins.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SLOTTED DRAIN DETAILS	DRAWING NO. C-13.60

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED CATCH BASIN REFERENCE	RLF	9/04
2			
3			
4			

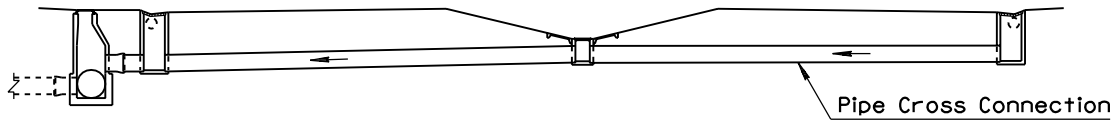


SECTION A-A
TYPICAL CONNECTION BETWEEN
CATCH BASIN AND MANHOLE

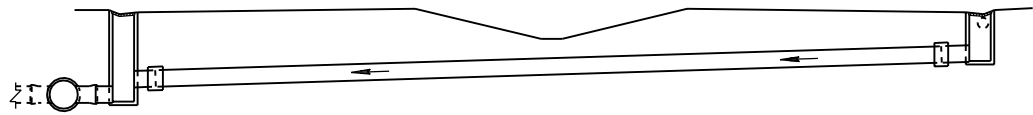


SECTION C-C
TYPICAL CONNECTION BETWEEN
CATCH BASIN AND MAIN STORM DRAIN

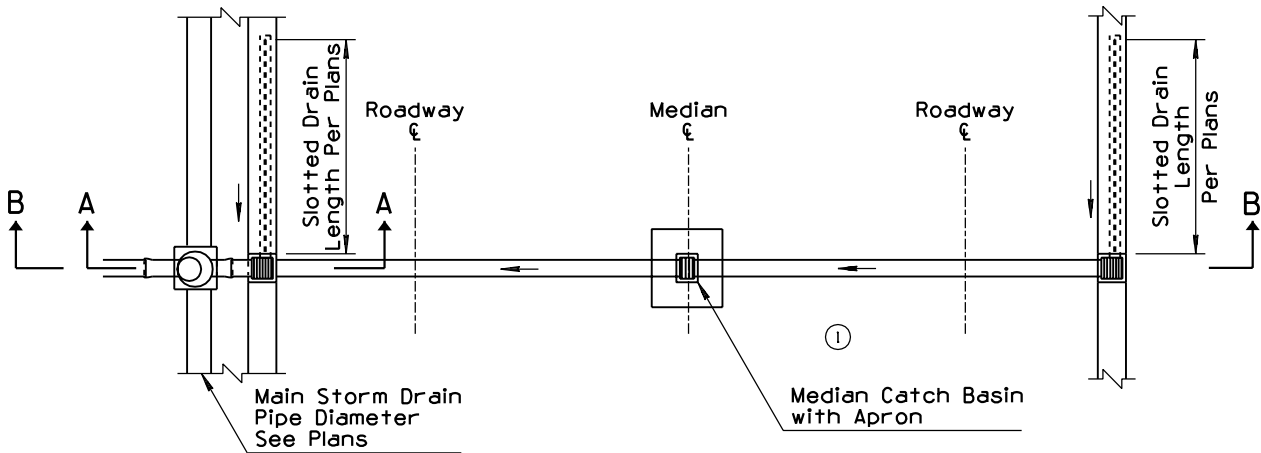
- GENERAL NOTES
1. Pipe collars are not required where direct catch basin connections can be made within 7° of a normal 90° installation, either horizontally or vertically.
 2. "T" connections direct to the main drainage trunk line should be avoided and used only where manhole connections are impractical.



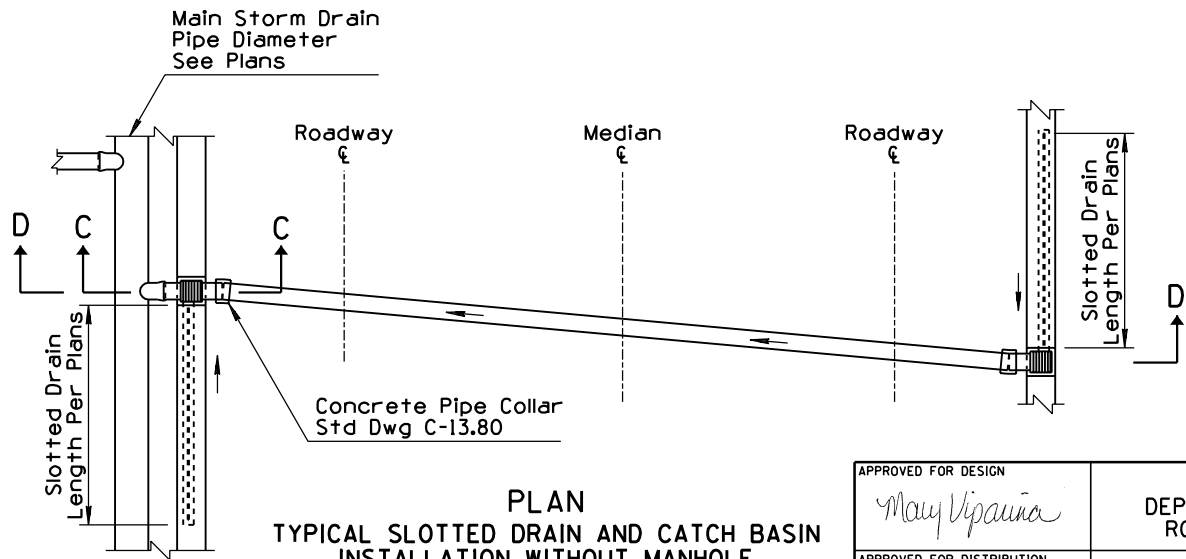
SECTION B-B



SECTION D-D



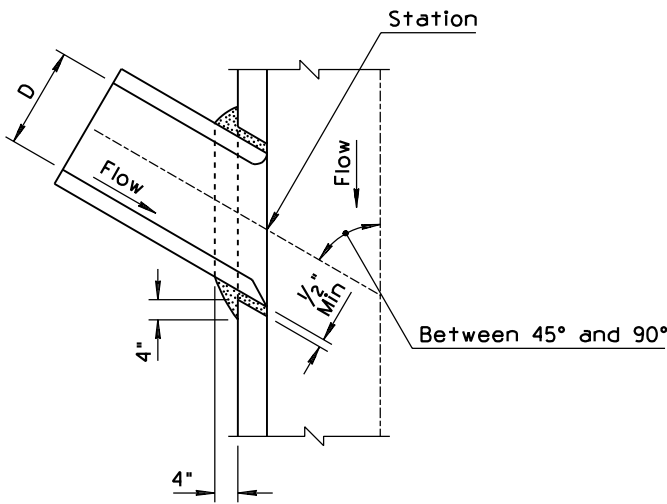
PLAN
TYPICAL SLOTTED DRAIN AND CATCH BASIN
INSTALLATION WITH MANHOLE



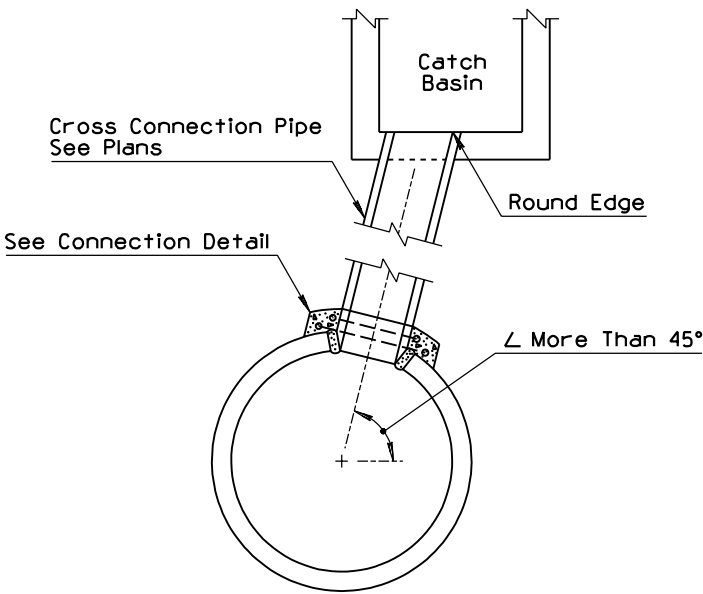
PLAN
TYPICAL SLOTTED DRAIN AND CATCH BASIN
INSTALLATION WITHOUT MANHOLE

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SLOTTED DRAIN INSTALLATION DETAILS	DRAWING NO. C-13.65

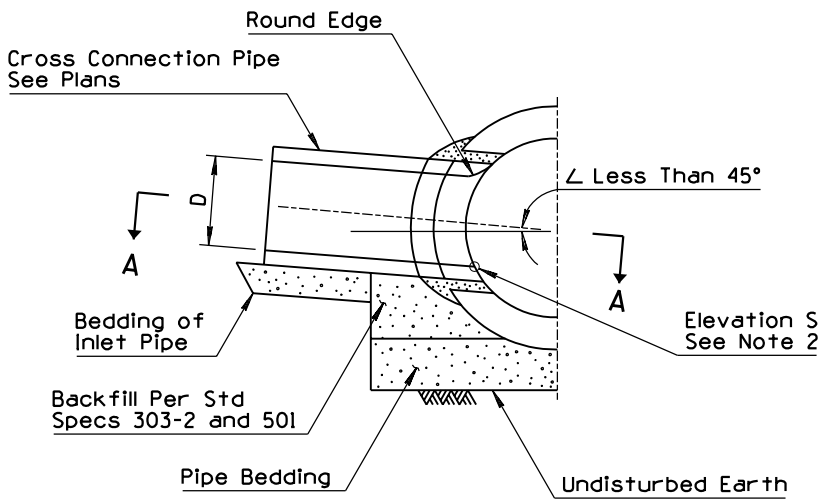
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REARRANGED STD	PNB	7/94
2			
3			
4			



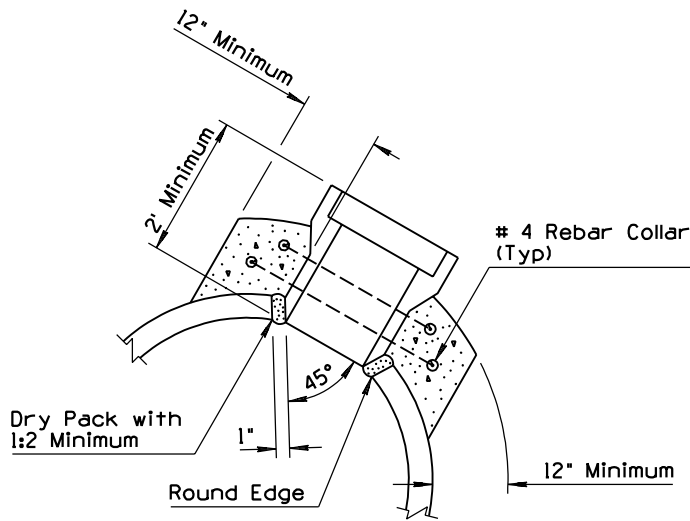
SECTION A-A



CATCH BASIN ABOVE STORM DRAIN
TYPE 2



SIDE INLET
TYPE 1



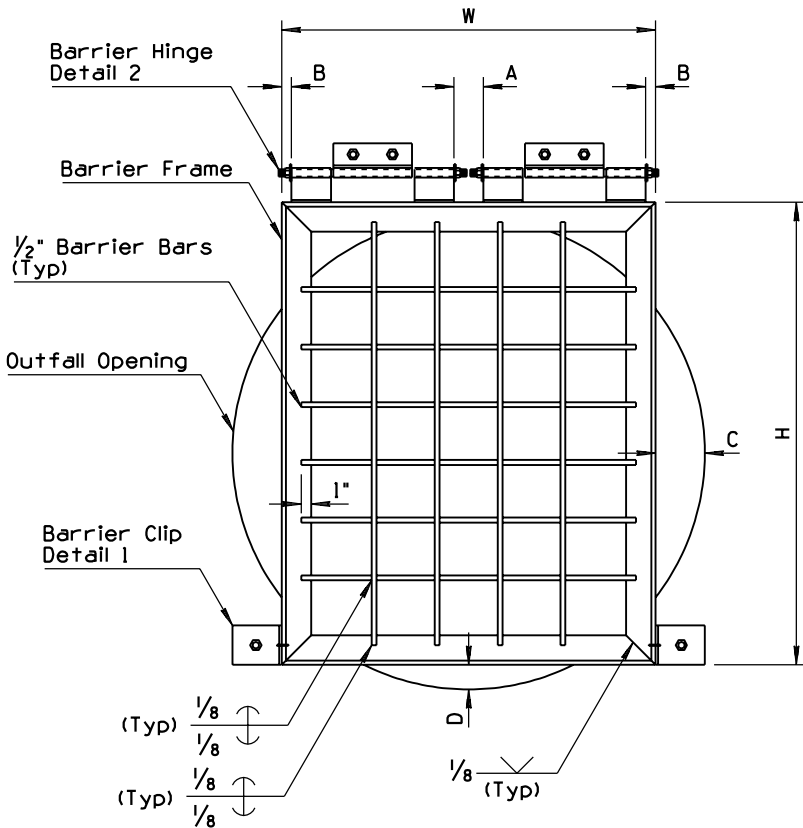
CONNECTION DETAIL
TYPE 2

GENERAL NOTES

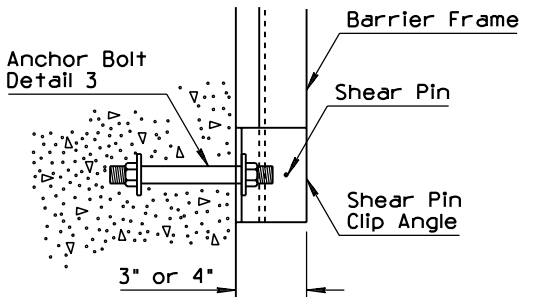
1. Prefabricated tees shall be used when the outside diameter of the inlet pipe exceeds one half of the inside diameter of the main storm drain, except when the manholes are shown on plans.
2. Centerline of the inlet pipe shall intersect the centerline of the main storm drain except when elevation "S" is shown on plans.
3. If \angle is 45° or less, Type 1 connection shall be used.
4. All concrete shall be Class B.
5. All rebar shall conform to Std Specs 1003-1 & 2.
6. Rebar shall have 2" minimum cover.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① STORM DRAIN CONNECTION DETAILS	DRAWING NO. C-13.70

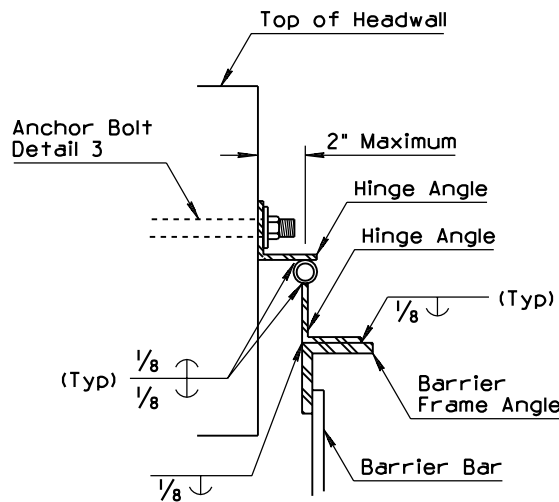
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD	RLF	9/04
2	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
3	MODIFIED STEEL QUANTITIES	RLF	9/04
4			



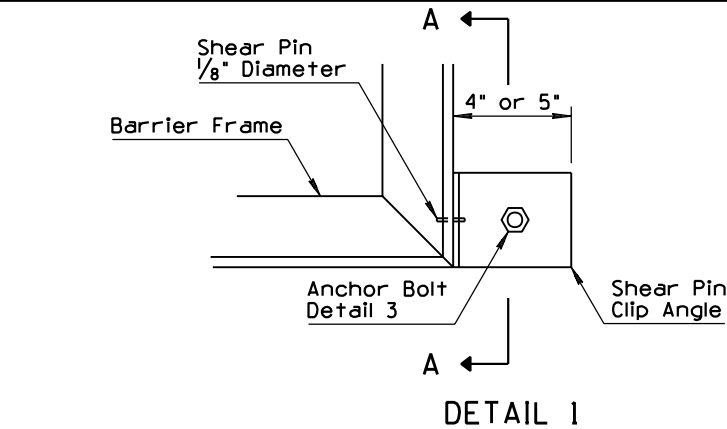
PIPE ACCESS BARRIER FRONT ELEVATION



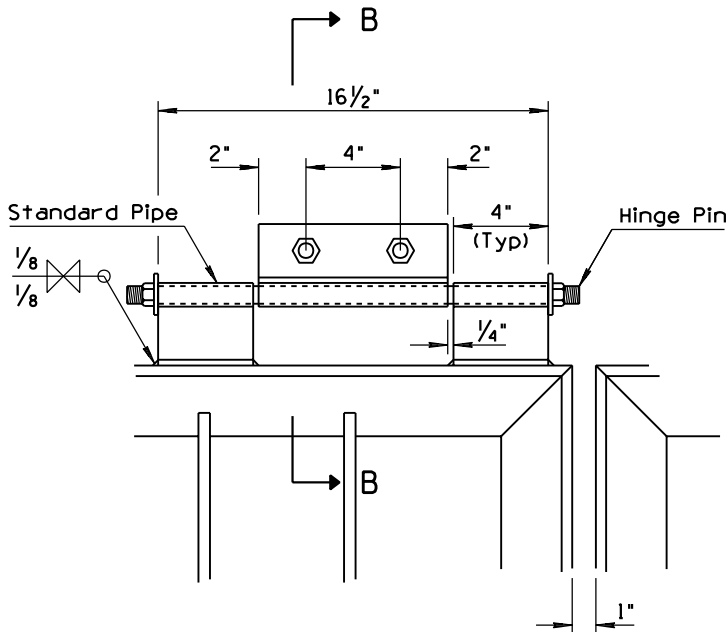
SECTION A-A



SECTION B-B

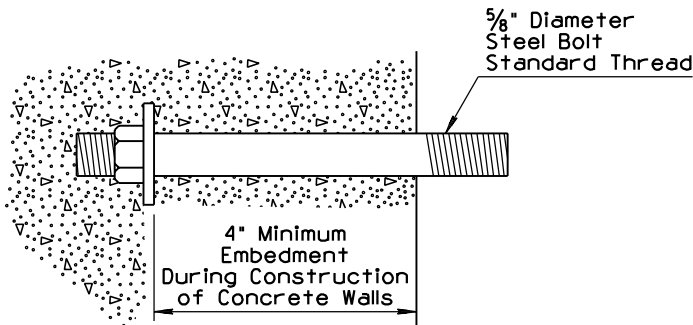


DETAIL 1

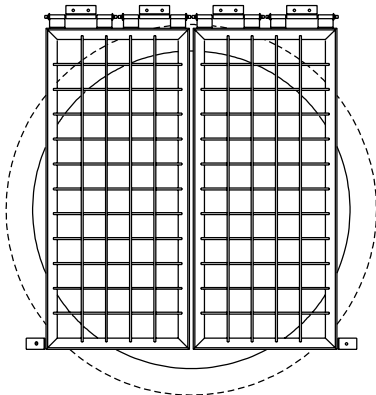


DETAIL 2

- ### GENERAL NOTES
1. All shear pin angles shall fit snug and true to face. Cover with waterproof grease prior to installation of pin.
 2. Shear pin holes in the angle shall be drilled for a tight fit of the pins.
 3. Both ends of the shear pins shall be peened after installation.
 4. Shear pin material shall be commercially pure aluminum wire alloy 1100, Temper 0, Federal Spec 00-A411.
 5. Galvanize all ferrous parts after fabrication.
 6. Frame and hinge angles shall have the outstanding legs out.
 7. All steel shall be in accordance with ASTM A36.
 8. Barrier bars shall be equally spaced.
 9. Hinge pin material shall be bolt stock and threaded on both ends so nut and lock washer are flush with the lower angle. Cover pin with waterproof grease prior to installation. Upset or damage exposed threads after installation.
 10. All welding shall be in accordance with Std Spec 604-3.06.



DETAIL 3



INSTALLATION DETAIL FOR DOUBLE GATES

ACCESS BARRIER GATE DIMENSION SCHEDULE															
Outfall Pipe ID (In)	Number of Barrier Gates	Frame Angles	Shear Pin Clip Angles	Hinge Pin Diameter (In)	Hinge Angles	Hinge Std Pipe Diameter (In)	Number & Length of Vertical Bars	Number & Length of Horizontal Bars	H (In)	W (In)	A (In)	B (In)	C (In)	D (In)	③ Structural Steel (Lbs)
30	1	2 x2 x 1/4	4 x4 x 1/4	1/2	2 x2 x 1/4	3/4	4-31	4-34	33	36	3	0	-3	2	80
36	1	2 x2 x 1/4	4 x4 x 1/4	1/2	2 x2 x 1/4	3/4	4-31	4-34	33	36	3	0	0	3.5	80
42	1	2 x2 x 1/4	4 x4 x 1/4	1/2	2 x2 x 1/4	3/4	4-41	5-34	43	36	3	0	3	0.5	90
48	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-46	6-34	50	38	3	1	5	1	180
54	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	5-52	7-40	56	44	5	3	5	2	205
60	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	6-58	8-46	62	50	9	4	5	3	235
66	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	7-64	9-52	68	56	11	6	5	4	265
72	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-69 *	9-34 *	73	38	3	1	-2.5	5	445
78	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-75 *	10-34 *	79	38	3	1	0.5	5	470
84	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-81 *	11-34 *	85	38	3	1	3.5	5	495
90	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-87 *	12-36 *	91	40	3	2	4.5	5	525
96	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	5-93 *	13-39 *	97	43	4	3	4.5	5	580

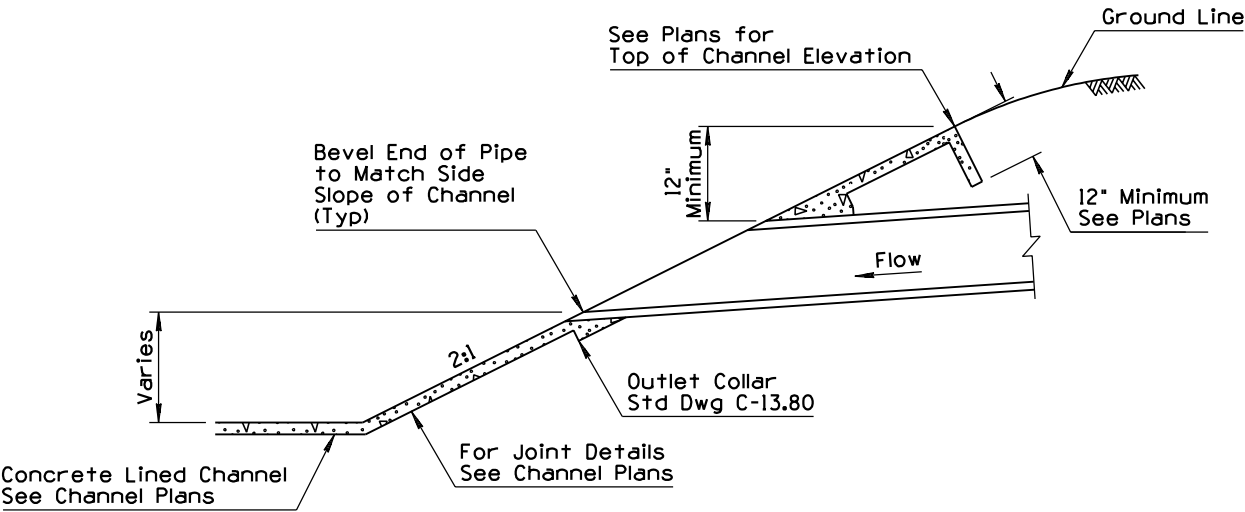
* Per Gate

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	STORM DRAIN OUTLET BARRIER GATE ①	DRAWING NO. C-13.75 ①

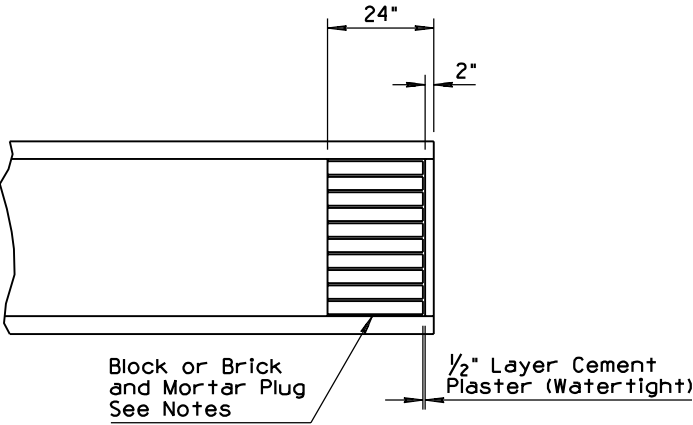
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD FROM C-13.75, SHEET 2	RLF	9/04
2			
3			
4			

GENERAL NOTES

1. Compact soil at end of pipe plug to 95% of maximum density.
2. If depth of cover is less than 5' or greater than 10', increase plug thickness a minimum of 4".



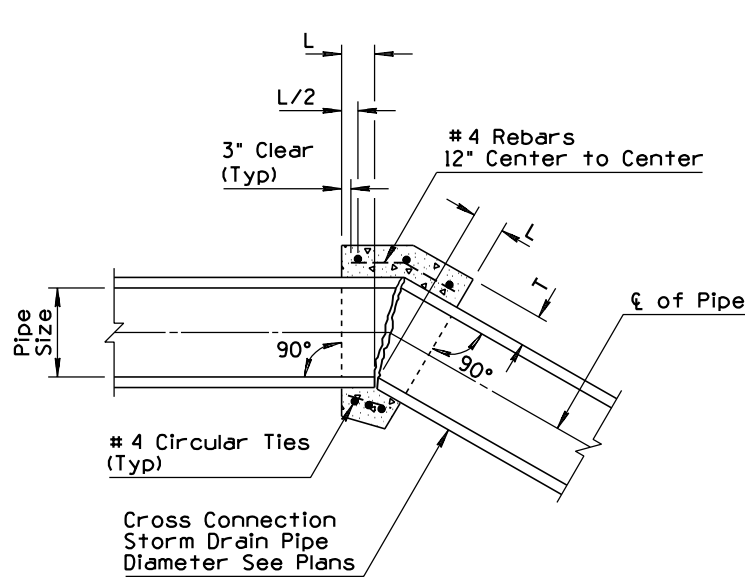
DRAINAGE OUTLET INTO CHANNEL



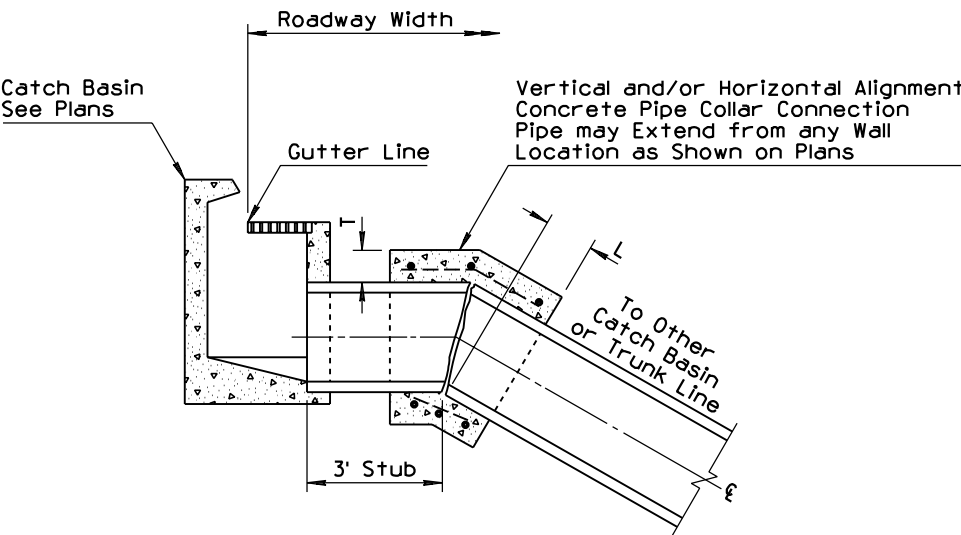
STORM DRAIN PLUG

APPROVED FOR DESIGN <i>May Viana</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia</i>	STORM DRAIN OUTLET AND STORM DRAIN PLUG ①	DRAWING NO. ① C-13.76

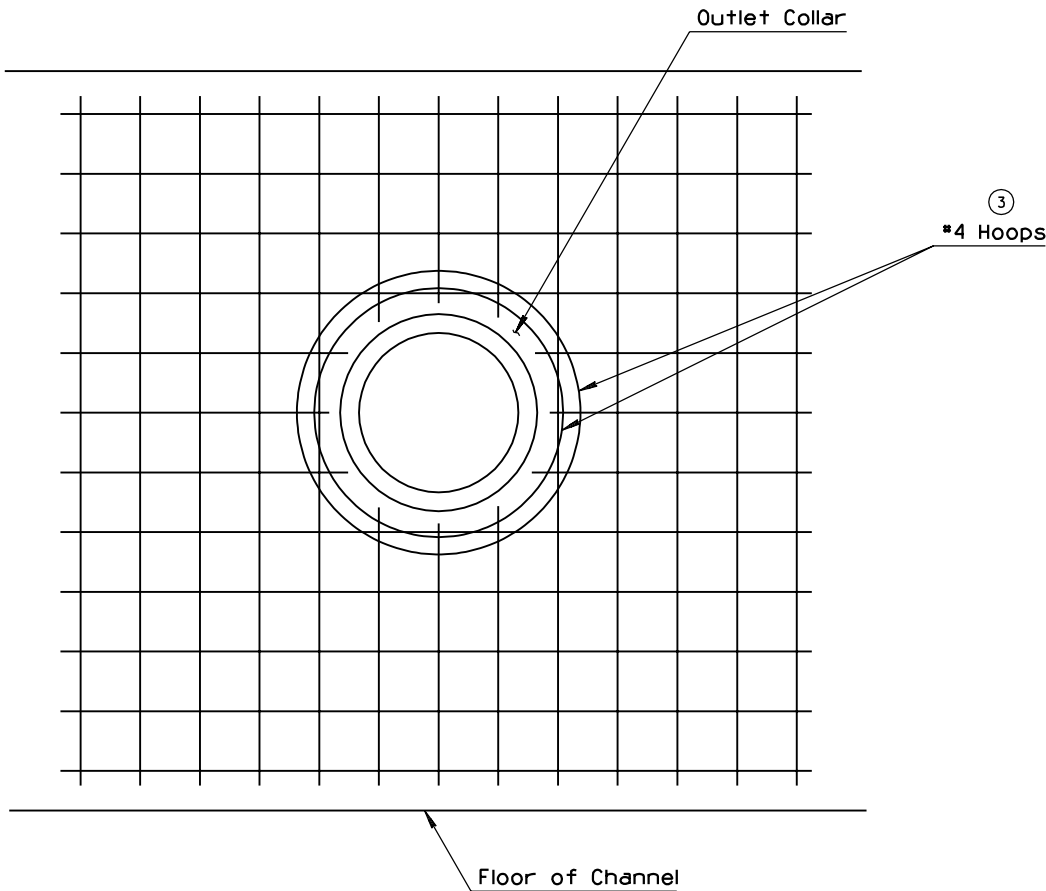
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE VALUES	RLF	9/04
2	MODIFIED GENERAL NOTE 2	RLF	9/04
3	ADDED CALLOUT	RLF	9/04
4			



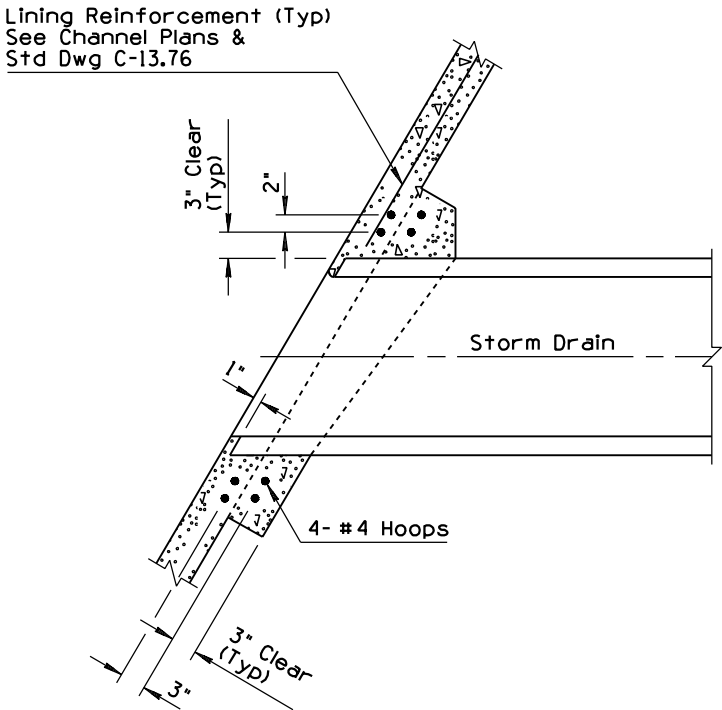
CONCRETE PIPE COLLAR



TYPICAL LATERAL CONNECTIONS TO CATCH BASINS WITH CONCRETE COLLARS



OUTLET COLLAR DETAIL



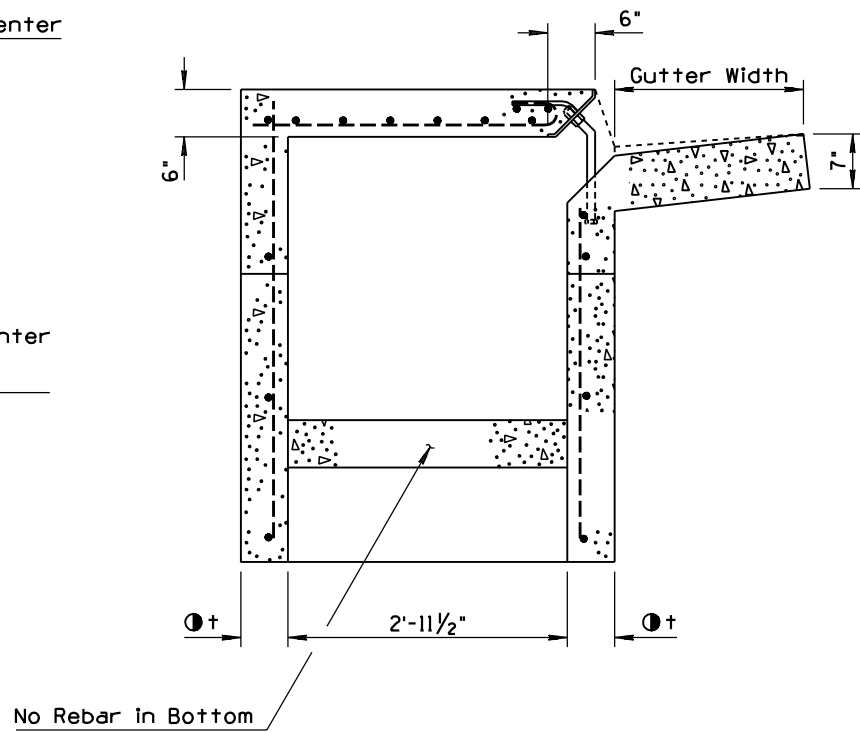
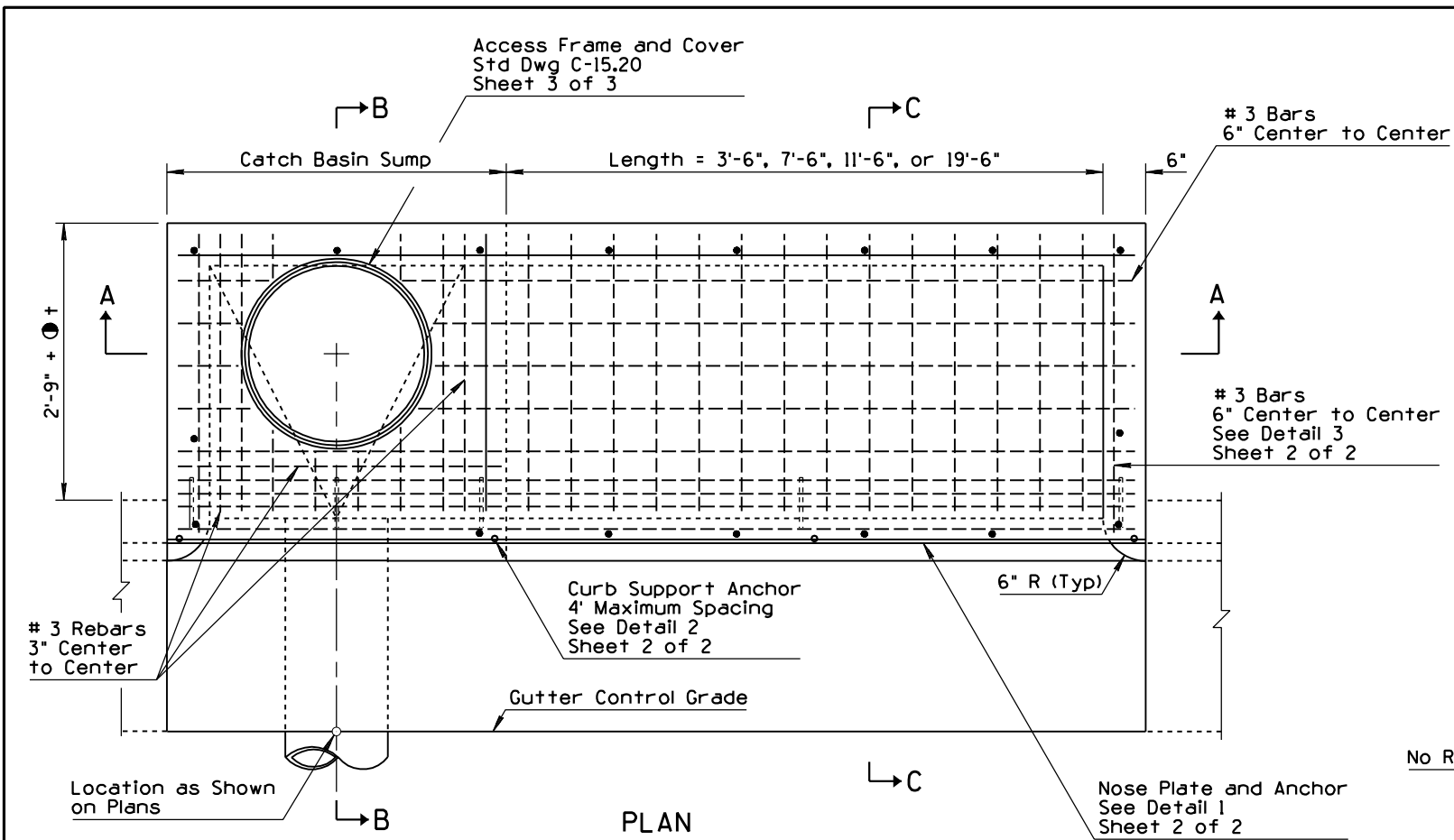
GENERAL NOTES

1. All concrete shall be Class B.
2. All rebar shall conform to Std Spec 1003-1.2.
3. All rebar shall have 3" minimum clear cover.
4. A concrete collar shall be required where pipes of different diameters or materials are joined or where the design change in alignment or grade exceeds that allowed for a standard joint.
5. When pipes of different diameters are joined with a concrete collar, "L" & "T" shall be those of the larger diameter.
6. The diameter of the circular ties shall be the outside diameter of pipe + 1.
7. Pipe ends to be trimmed such that the maximum distance between pipes at any point is 2".

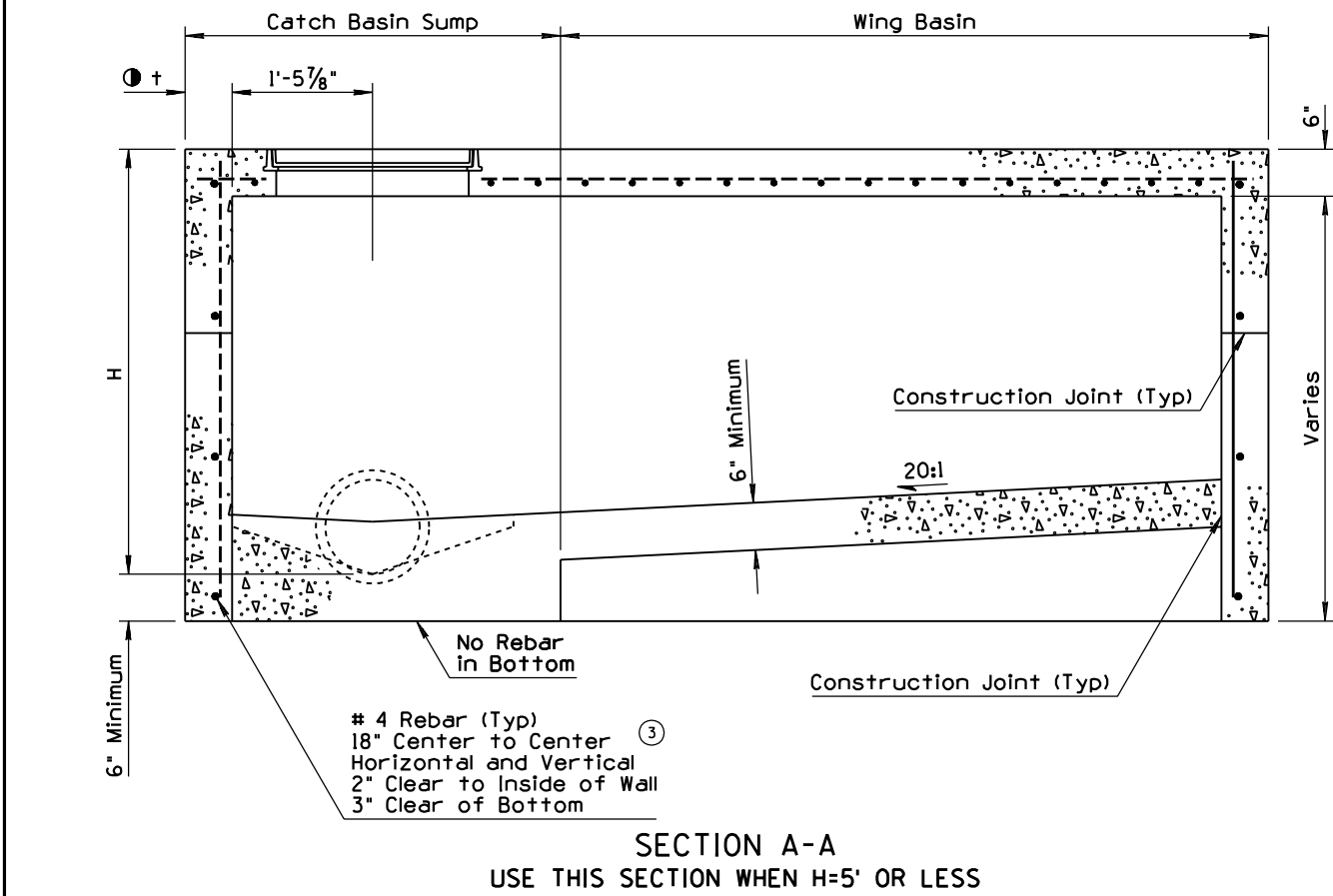
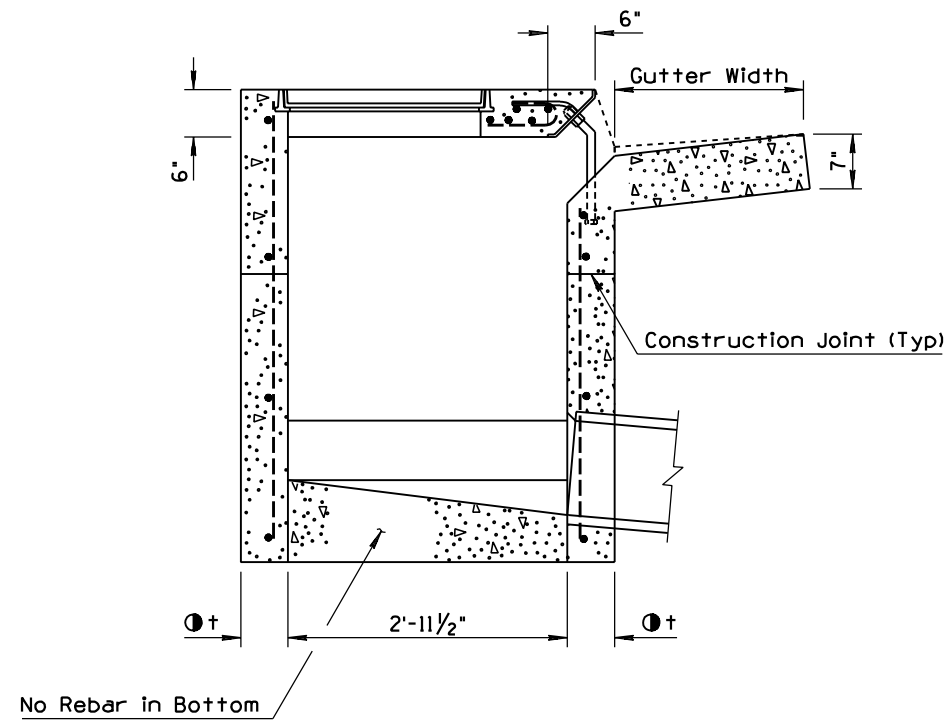
PIPE COLLAR TABLE			
Pipe Size (In)	L (Ft-In)	T (In)	#4 Ties
12	1-0	4	3
18	1-0	5	3
24	1-0	6	3
30	1-6	8	3
36	1-6	8	3
42	1-9	10	4
48	1-9	10	4
52	1-9	10	4
60	1-9	11	4
66	2-0	11	5
72	2-0	14	5
78	2-0	14	5
84	2-3	16	5
96	2-3	16	5

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE COLLAR DETAILS	DRAWING NO. C-13.80

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED NOTES 5, 10 & 11	RLF	9/04
2	DELETED GENERAL NOTE 9	RLF	9/04
3	ADDED CALLOUT	RLF	9/04
4			

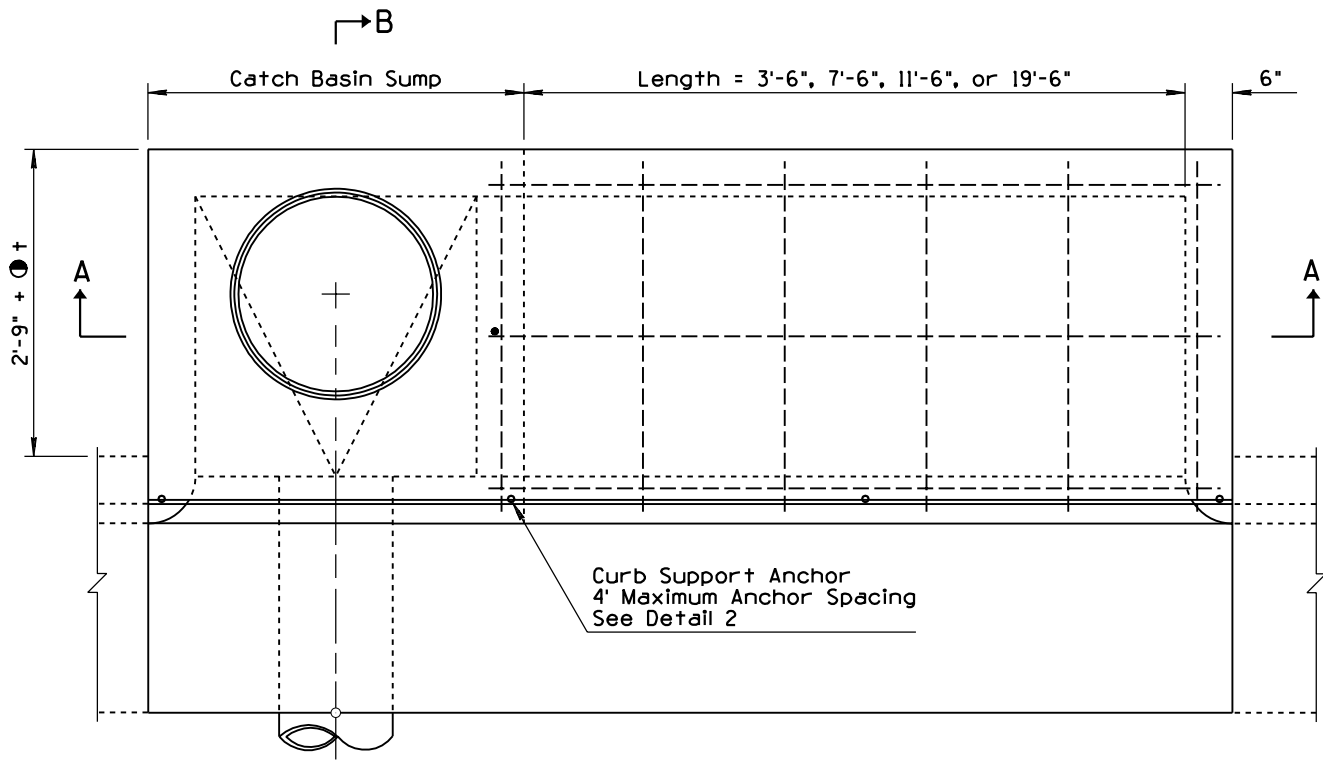


- ### GENERAL NOTES
- Catch basin can be used on grade or at roadway sag.
 - Catch basin has three configurations:
 - Sump Only-Sump portion of catch basin (See Detail 4, Sheet 2 of 2).
 - Single Wing (Illustrated)-Sump with wing basin upstream.
 - Double Wing-Sump with symmetrical wing basins each side.
 - Pipes can be placed in any wall except wall adjacent to wing basin.
 - Floor shall be a wood trowel finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 4:1.
 - Any specified inlet depression shall be warped to opening according to Std Dwg C-15.70.
 - All rebar shall be ASTM A36.
 - Nose plate, access frame and cover shall be given one shop coat of Number 1 paint.
 - All concrete shall be Class B.
 - Curb opening area (sq ft) per inch of curb "h" + gutter depression = curb opening length (ft) x 0.0833.
 - All welding shall be in accordance with Std Spec 604-3.06.
 - Construction joints and drains shall be placed to meet field conditions. See Std Dwg C-15.70.
 - 6" when H is 8' or less.
8" when H is greater than 8'.

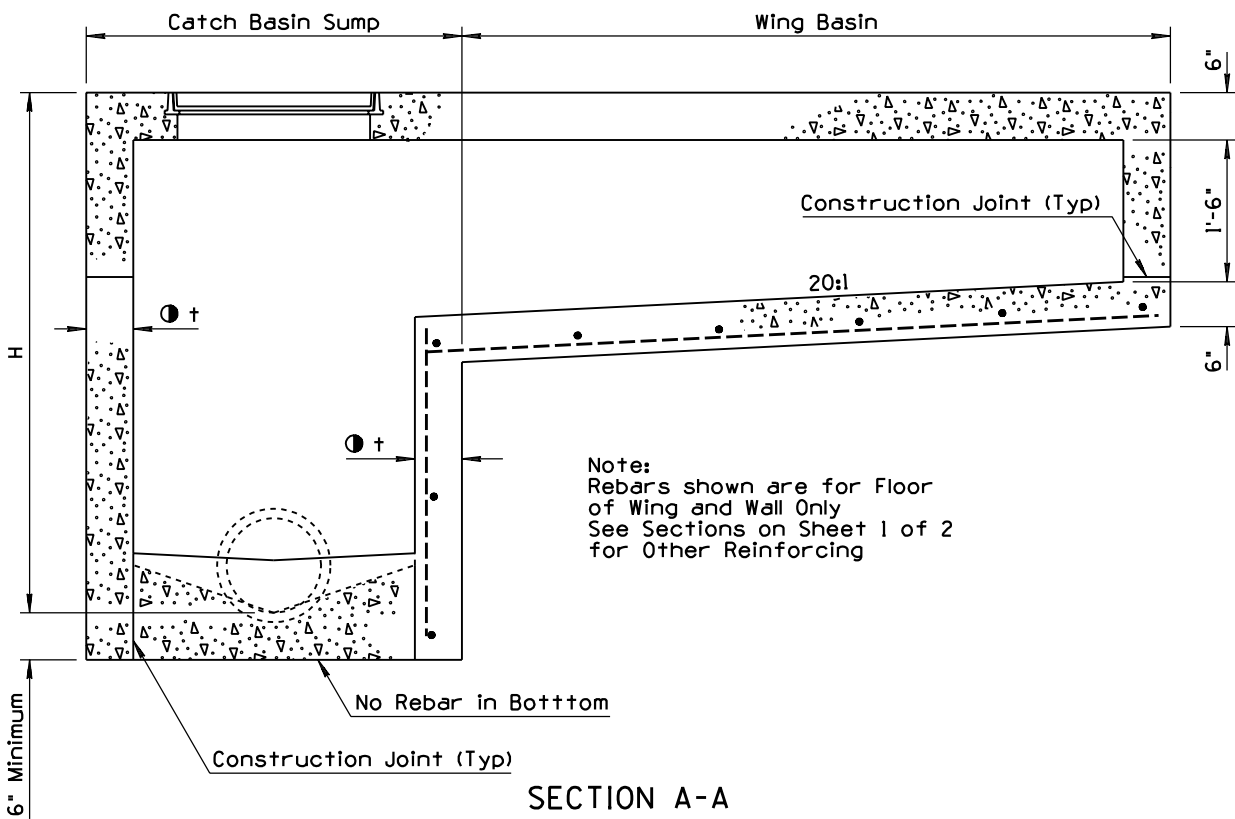


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/01
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN TYPE 3	DRAWING NO. C-15.20 Sheet 1 of 3

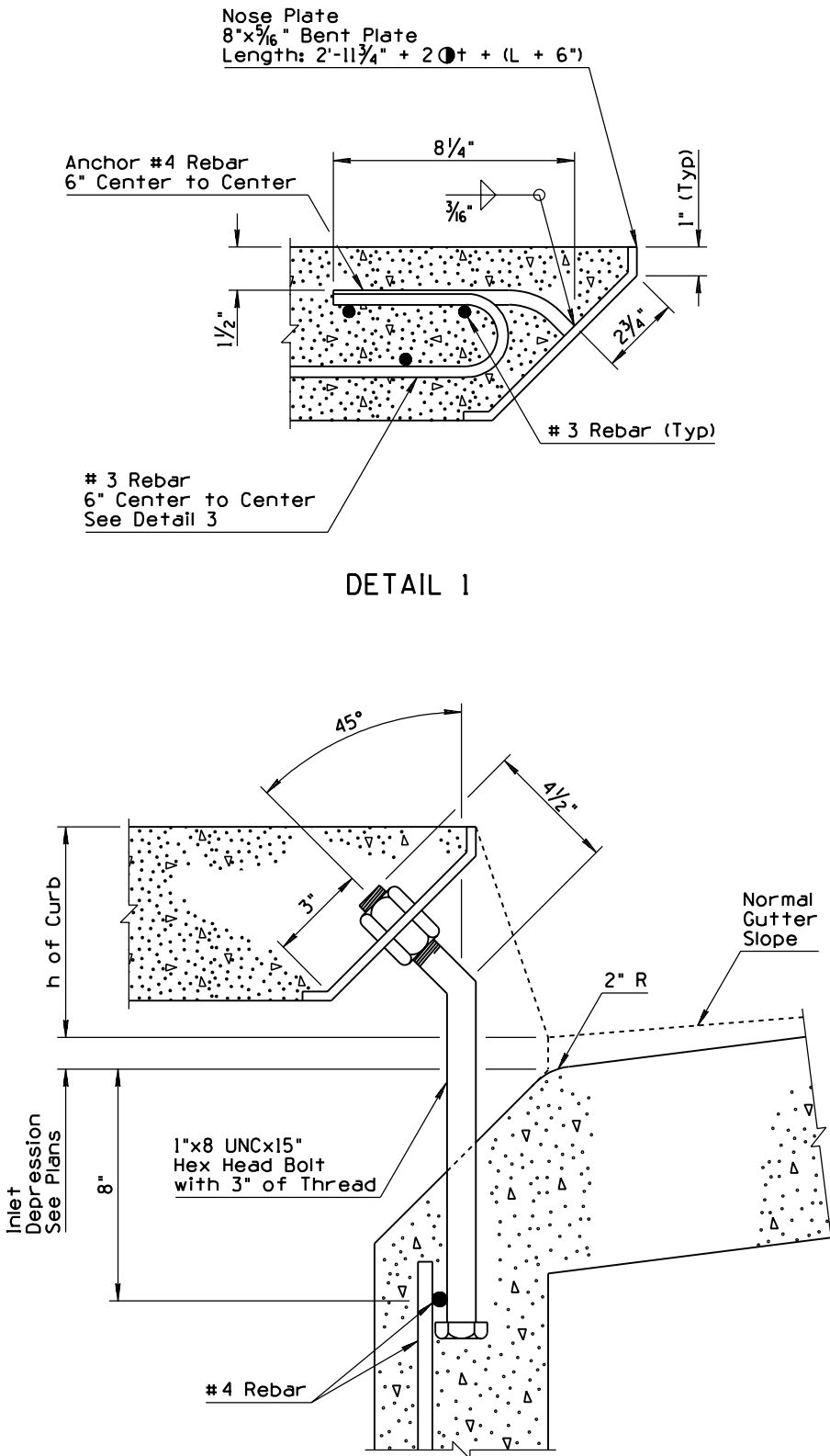
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			



PLAN

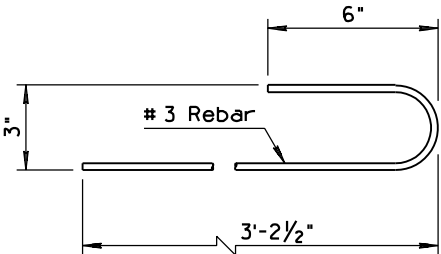


SECTION A-A
USE THIS SECTION WHEN H IS GREATER THAN 5'

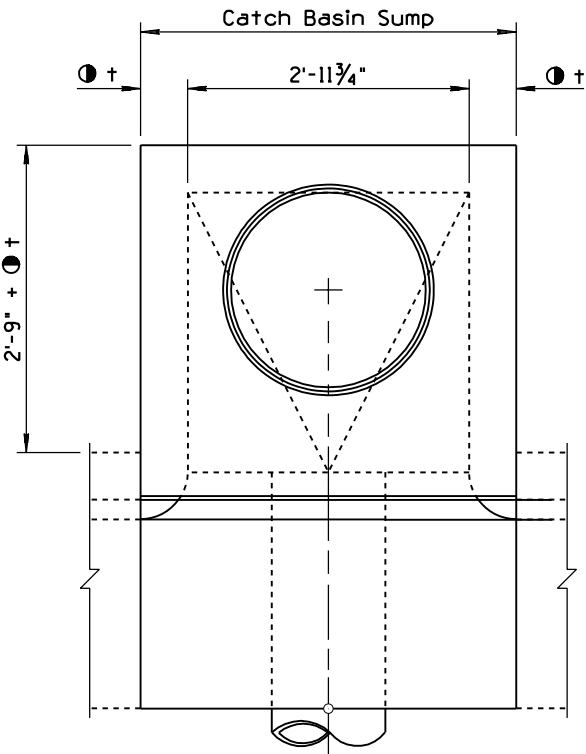


DETAIL 2
CURB SUPPORT ANCHOR

- GENERAL NOTES
- See Sheet 1 of 2 for other dimensions, notes and rebar.
 - $\text{Ø} + t = 6"$ when H is 8' or less
 $8"$ when H is greater than 8'



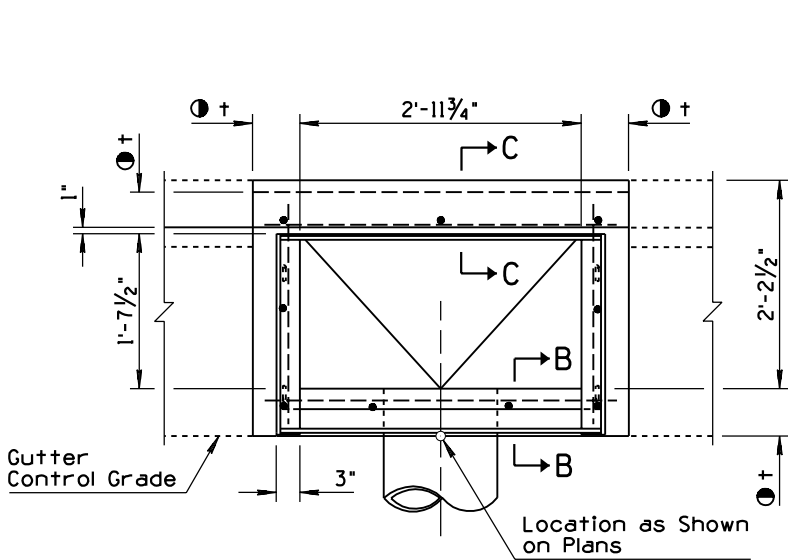
DETAIL 3



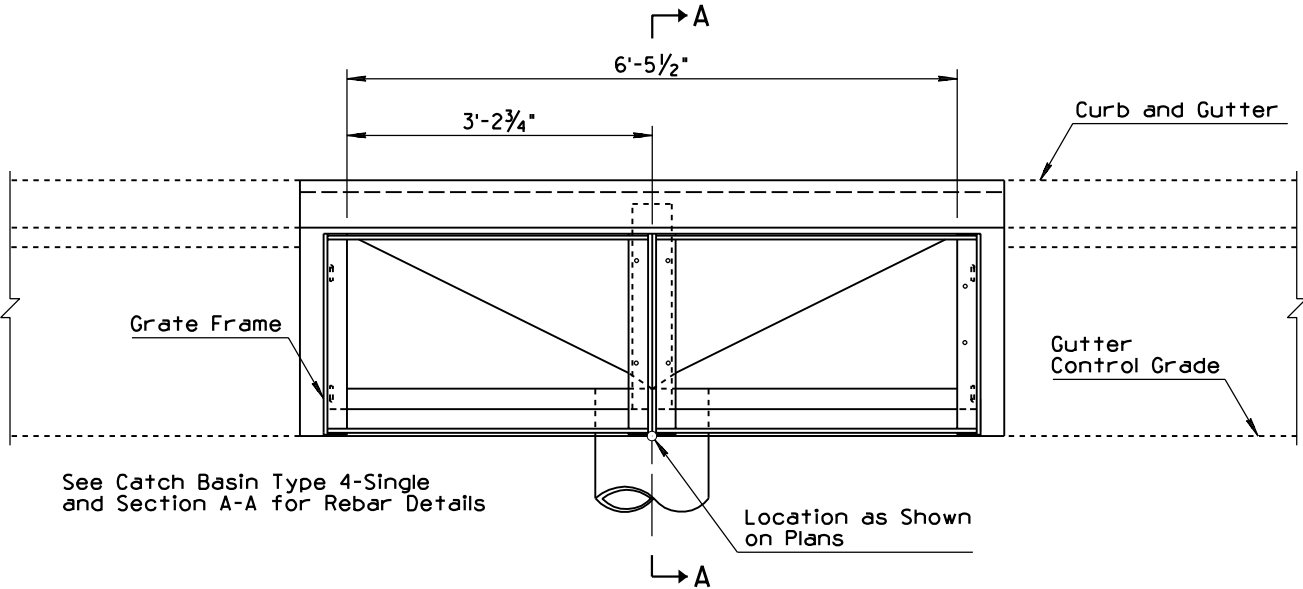
DETAIL 4

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/97
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN TYPE 3	DRAWING NO. C-15.20 Sheet 2 of 3

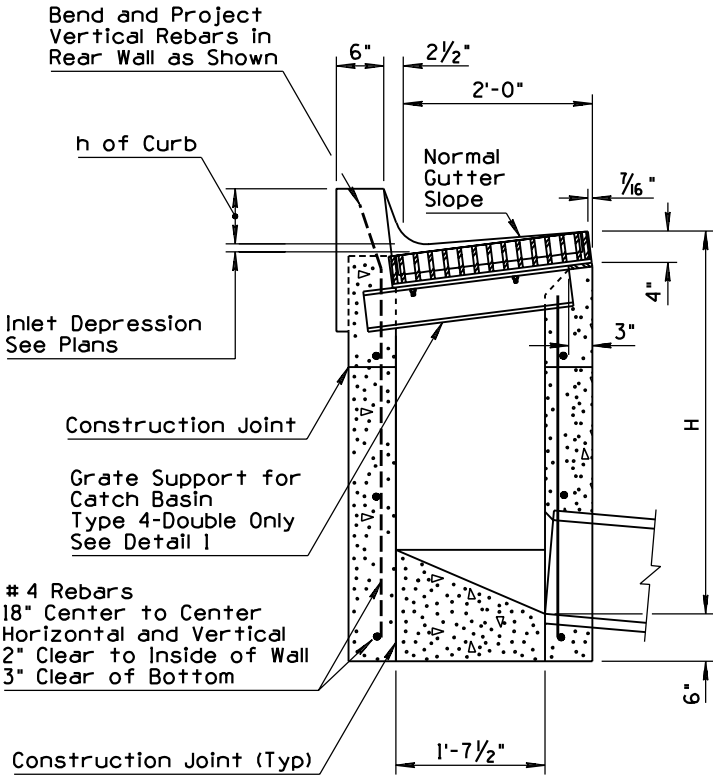
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED STANDARD FOR NEW FRAME	PNB	5/97
2			
3			
4			



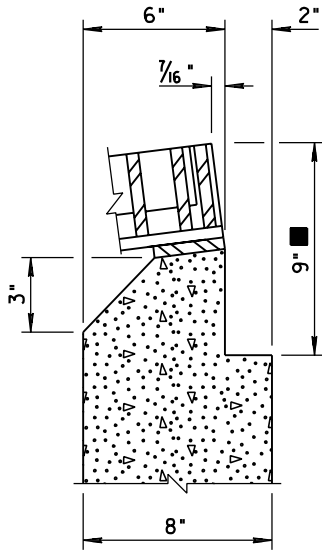
PLAN - CATCH BASIN TYPE 4 - SINGLE



PLAN - CATCH BASIN TYPE 4 - DOUBLE

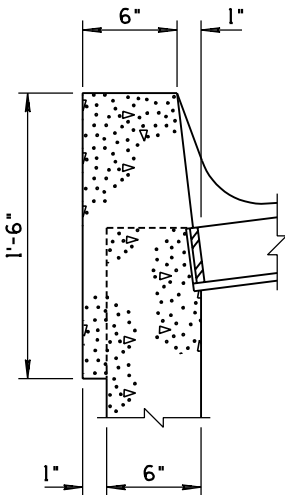


SECTION A-A

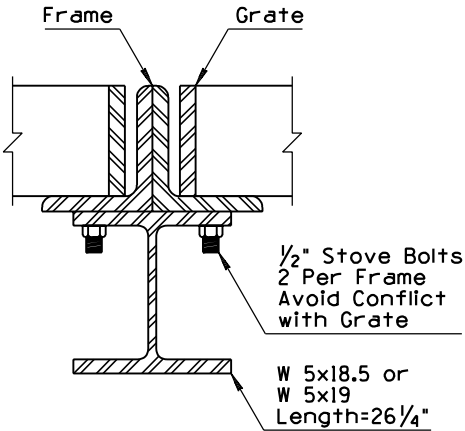


USE THIS SECTION
WHEN t=8"

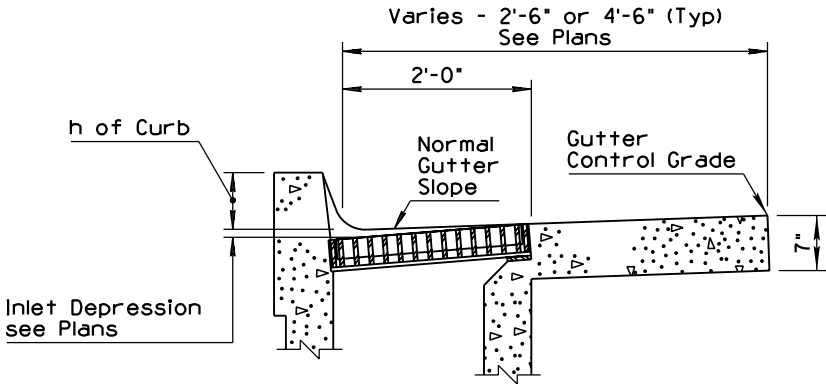
SECTION B-B



SECTION C-C



DETAIL 1



DETAIL FOR WIDE GUTTER
(SEE STD DWG C-05.10)

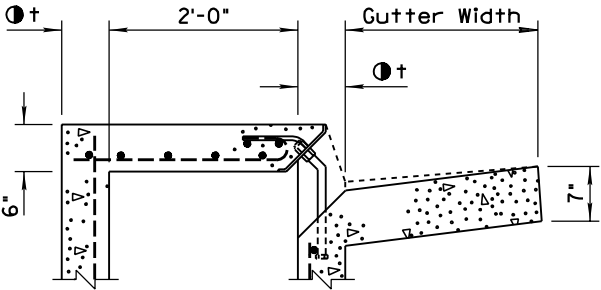
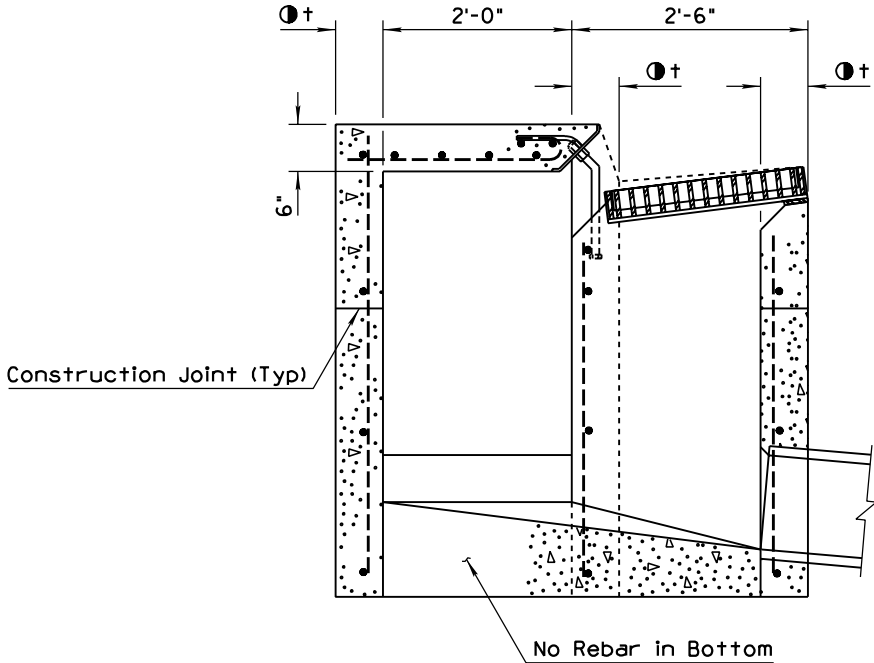
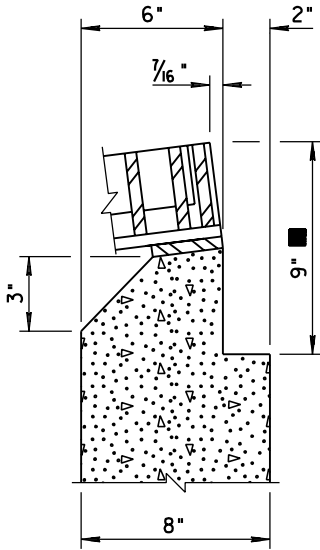
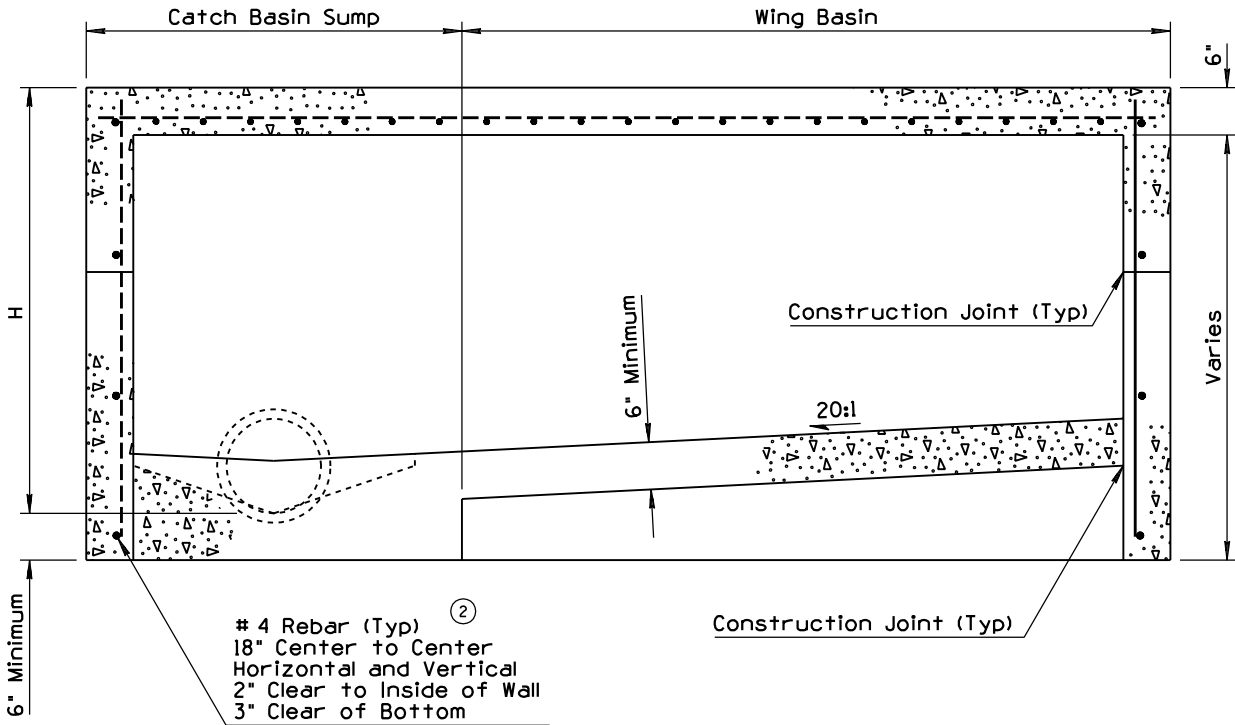
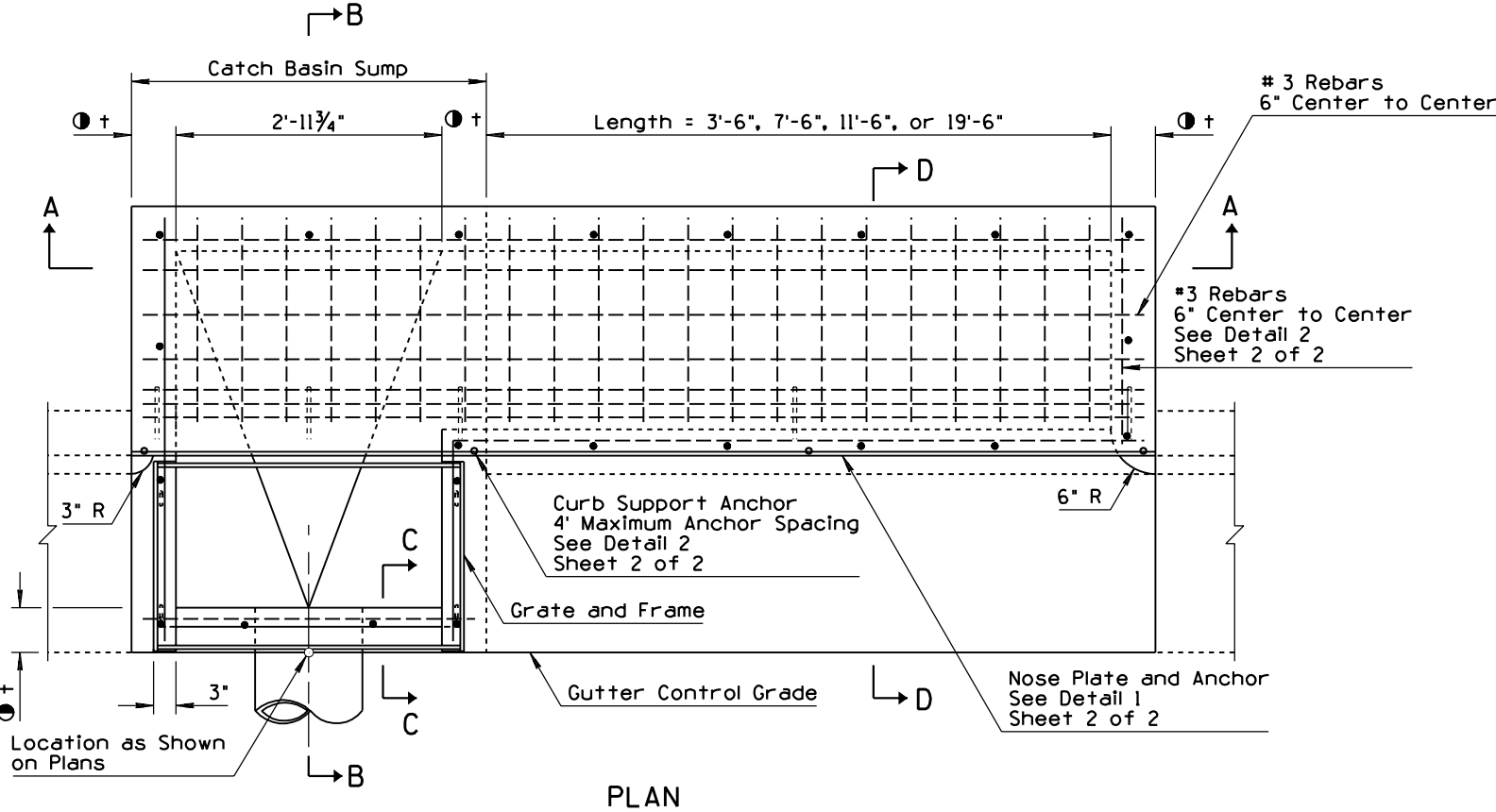
GENERAL NOTES

- Catch basin can be used on grade or at roadway sag.
- Pipes can be placed in any wall.
- Floor shall be a wood troweled finish with a minimum 4:l slope along the axis of the pipe toward the pipe.
- Curb over catch basin shall not be constructed until catch basin concrete has set for a minimum of 24 hours.
- Catch basin can be used with curb and gutter (as shown) or without.
- See Std Dwg C-15.50 for grate and frame details and opening areas.
- Any specified inlet depression shall be warped to opening according to Std Dwg C-15.70.
- All rebar shall be ASTM A36.
- Grate, frame and beam shall be given one shop coat of Number 1 paint.
- All concrete shall be Class B.
- Construction joints and drains shall be placed to meet field conditions. See Std Dwg C-15.70.
- Silicone sealant shall be placed between the grate frame and PCCP, recessed 1/4" from the pavement surface.
- See Detail 2 for catch basin with wide gutter.
- t

=
6" when H is 8' or less.
8" when H is greater than 8'.
See Section B-B.
- 9" when pavement is AC.
Match pavement thickness
when pavement is PCCP.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/97
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① CATCH BASIN TYPE 4	DRAWING NO. C-15.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED GENERAL NOTE 9, RENUMBERED ALL AFTER 8	RLF	9/04
2	ADDED CALLOUT	RLF	9/04
3			
4			



GENERAL NOTES

- Catch basin can be used on grade or at roadway sag.
- Catch basin has three configurations:
Sump only-sump portion of catch basin;
Single wing (illustrated)-sump with wing basin upstream; and
Double wing-sump with symmetrical wing basins each side.
- Pipes can be placed in any wall except wall adjacent to a wing basin.
- Floor shall be a wood troweled finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 4:1.
- Any specified inlet depression shall be warped to opening according to Std Dwg C-15.70.
- All rebar shall be ASTM A36.
- Nose plate shall be given one shop coat of Number 1 paint.
- All concrete shall be Class B.
- ① Curb opening area (sq ft) per inch of curb "h" + inlet depression = curb opening length (ft) x 0.0833.
- All welding shall be in accordance with Std Spec 604-3.06.
- See Std Dwg C-15.50 for grate and frame details and opening areas.
- Construction joints and drains shall be placed to meet field conditions. See Std Dwg C-15.70.
- Silicone sealant shall be placed between the grate frame and PCCP, recessed 1/4" from the pavement surface.
15. ① = 6" when H is 8' or less.
8" when H is greater than 8'.
See Section C-C.
16. ■ = 9" when pavement is AC.
Match pavement thickness when pavement is PCCP.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN TYPE 5	DRAWING NO. C-15.40 Sheet 1 of 2

GENERAL NOTES

- See Sheet 1 of 2 for other dimensions, notes and rebar.
- Øt = 6" when H is 8' or less
8" when H is greater than 8'

PLAN

Catch Basin Sump

Length = 3'-6", 7'-6", 11'-6", or 19'-6"

2'-11 3/4"

6"

Curb Support Anchor
4" Maximum Anchor Spacing
See Detail 2

SECTION A-A

USE THIS SECTION WHEN H IS GREATER THAN 5'

Catch Basin Sump

Wing Basin

Construction Joint (Typ)

20:1

Note:
Rebars Shown are for Floor
of Wing and Wall Only
See Sections on Sheet 1 of 2 for
Other Reinforcement

No Rebar in Bottom

Construction Joint (Typ)

6" Minimum

6"

1'-6"

6"

DETAIL 1

Nose Plate
8"x5/16" Bent Plate
Length: 2'-11 3/4" + 2Øt + (L + 6")

Anchor #4 Rebar
6" Center to Center

8 1/4"

3/16"

1 1/2"

#3 Rebar
6" Center to Center
See Detail 3

#3 Rebar (Typ)

2 3/4"

1" (Typ)

DETAIL 3

6"

3"

#3 Rebar

2'-3 1/2"

DETAIL 2

CURB SUPPORT ANCHOR

45°

4 1/2"

3"

1"x8 UNCx15"
Hex Head Bolt
with 3" of Thread

Normal
Gutter
Slope

1/2" R

h of Curb

8"

Inlet Depression
See Plans

#4 Rebar

#4 Rebar

DETAIL 4

Varies - 2'-6" or 4'-6" (Typ)
See Plans

2'-0"

Normal
Gutter
Slope

Gutter
Control
Grade

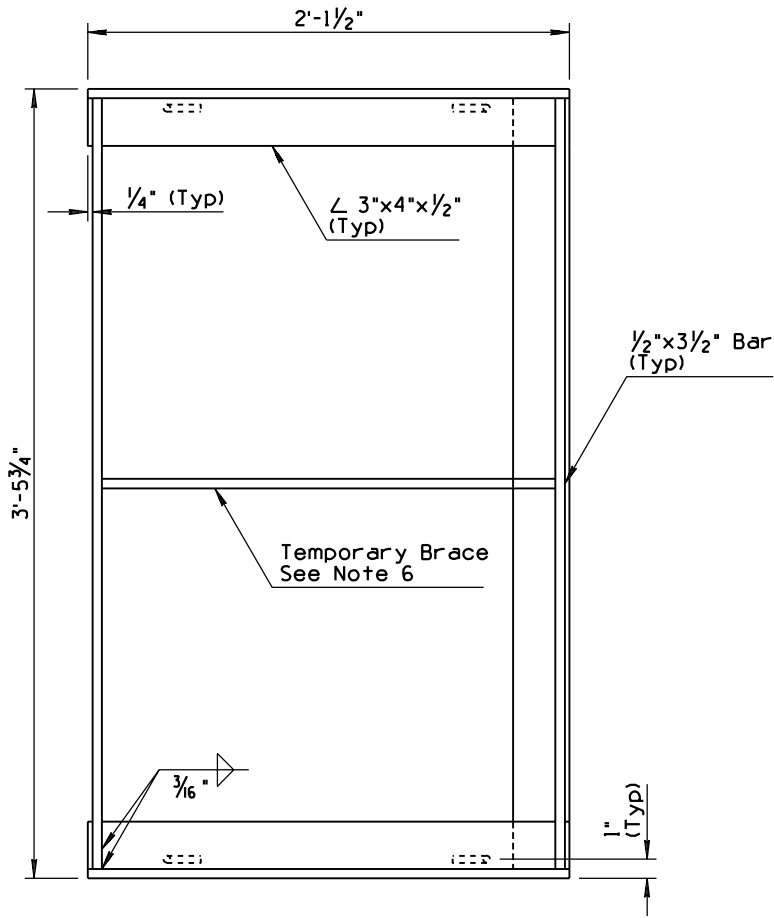
h of Curb

7"

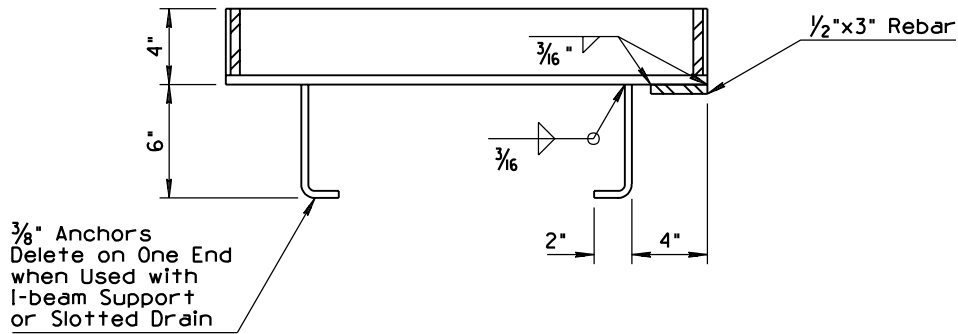
Inlet Depression
See Plans

APPROVED FOR DESIGN <i>May Vipanua</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/97
APPROVED FOR DISTRIBUTION <i>Julio</i>	CATCH BASIN TYPE 5	DRAWING NO. C-15.40 Sheet 2 of 2

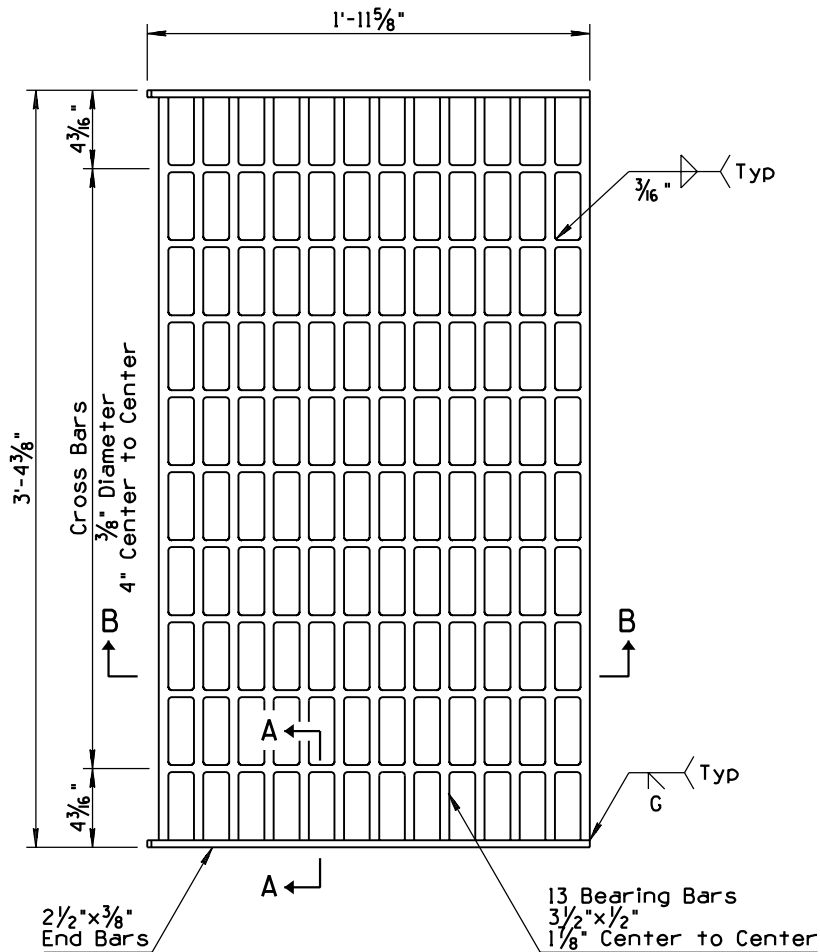
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED GRATE DIMENSIONS AND REISSUED STANDARD	RT/RLF	7/01
2			
3			
4			



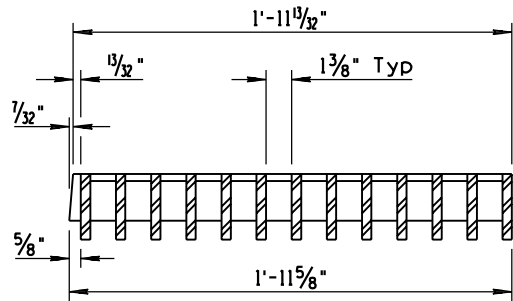
PLAN



SECTION
FRAME



PLAN

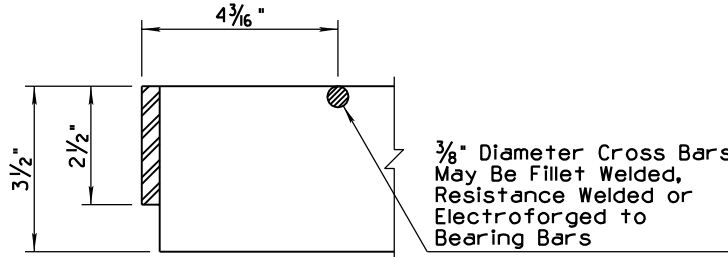


SECTION B-B
GRATE

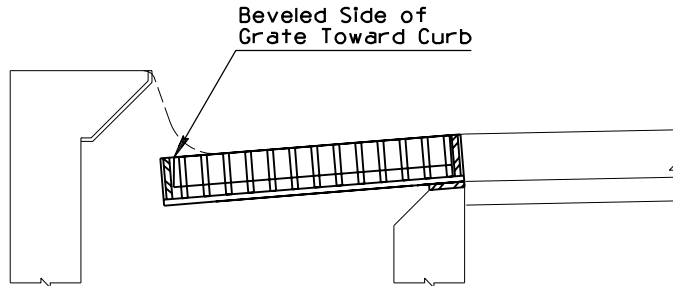
①

GENERAL NOTES

1. Grating units and frames shall be fabricated from structural steel ASTM A36 except as noted.
2. All welding shall be in accordance with Std Spec 604-3.06.
3. The completed assembly shall be given one shop coat of Number 1 paint.
4. Frames and grates shall fit to a maximum rock of 3/32" at any point.
5. Grate opening is 3.60 Sq Ft.
6. Bracing of frame is recommended for handling and placement purposes.
7. Frame and Grate to be used with Std Dwgs C-15.10, C-15.30 and C-15.40 .
8. Grate may be used with Std Dwg C-15.92 Frame.



SECTION A-A



TYPICAL INSTALLATION

C-15.10 Catch Basin Shown
Similar for C-15.30 and C-15.40

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/01
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN FRAME AND GRATE	DRAWING NO. C-15.50

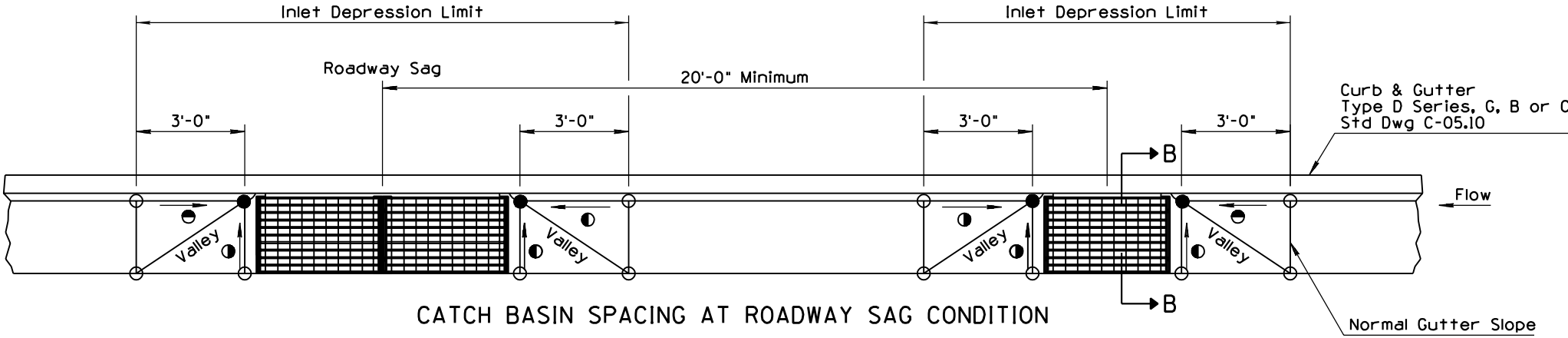
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

GENERAL NOTES

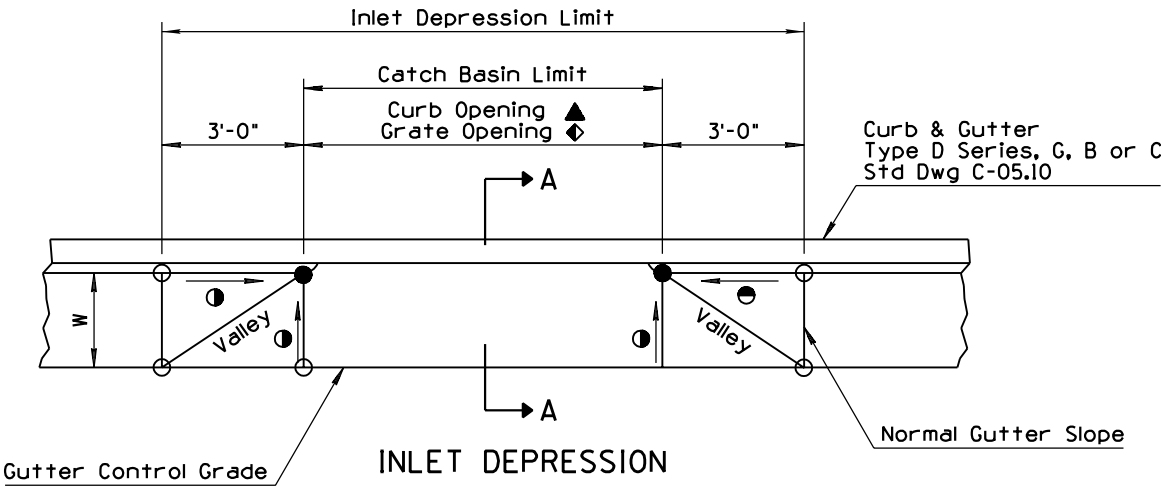
1. No inlet depression shall extend into a traffic lane.
2. Maximum combined inlet and gutter depression is 3". See Section A-A.
3. Maximum distance along curb between catch basins where full gutter depression is used is 10'.
4. See Std Dwg C-15.80 for aprons used with Std Dwg C-15.80 Catch Basin.

LEGEND

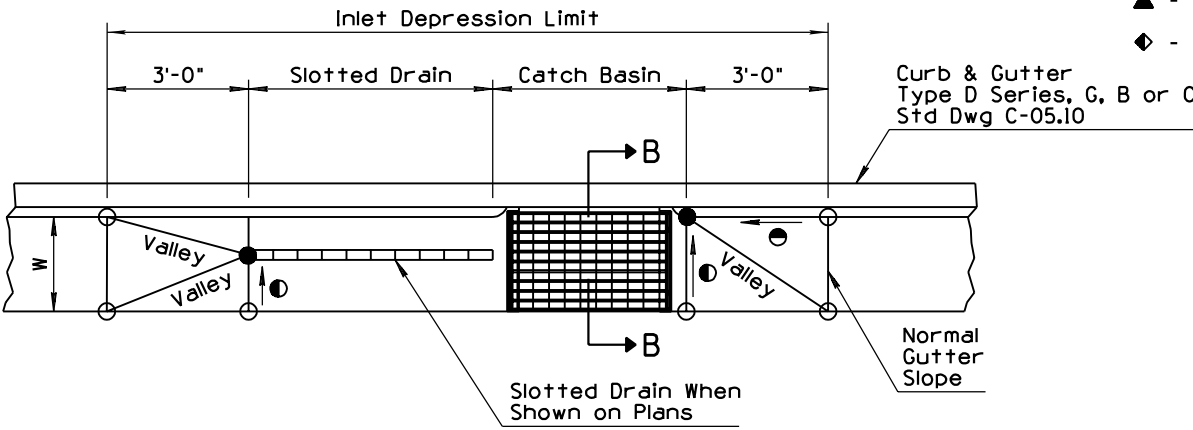
- - Normal pavement or gutter flow line elevation.
- - Depressed elevation.
- ⬇ - Straight grade with downward slope.
- W - Normal gutter width per Std Dwg C-05.10.
- ▲ - For Types 1, 3, & 5 Catch Basin.
- ◆ - For Type 4 Catch Basin & Std Dwg C-15.91.



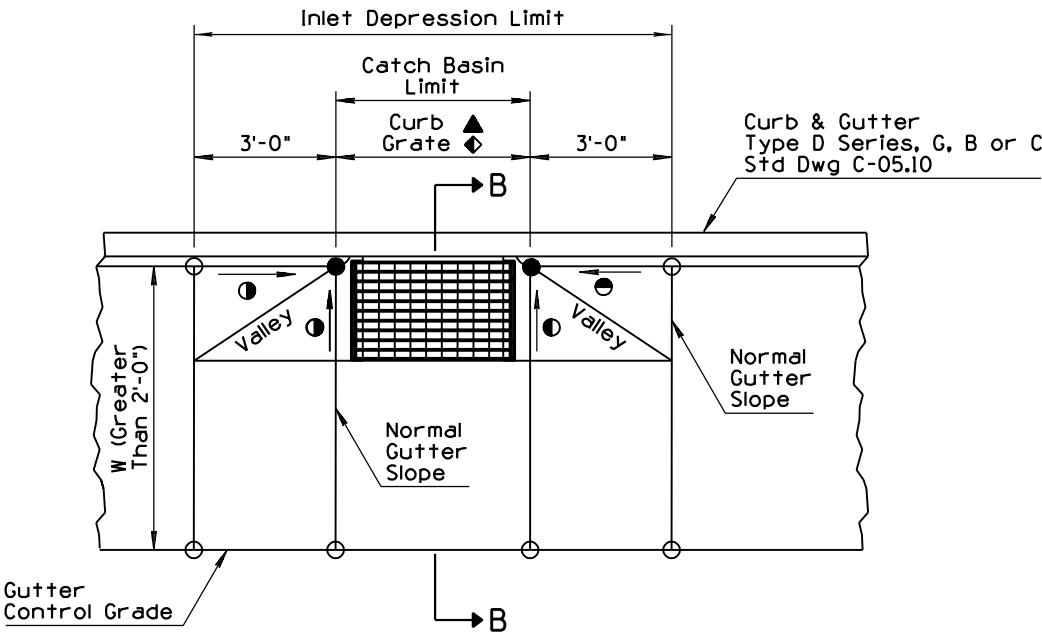
CATCH BASIN SPACING AT ROADWAY SAG CONDITION



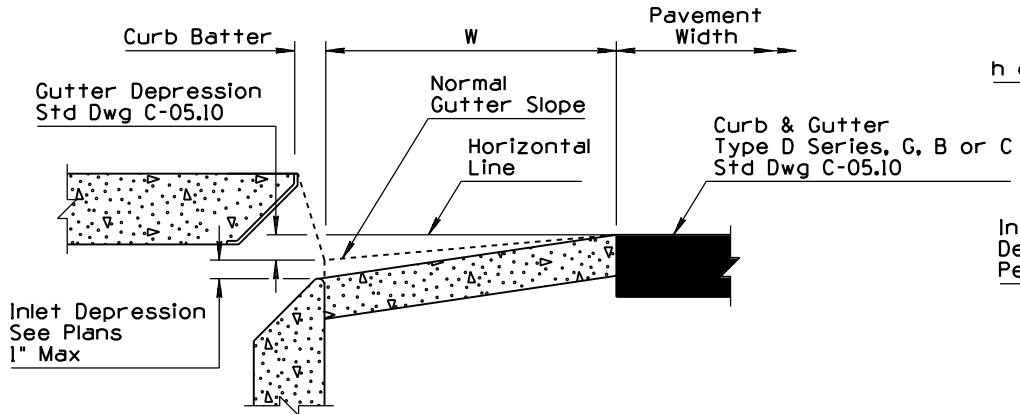
INLET DEPRESSION



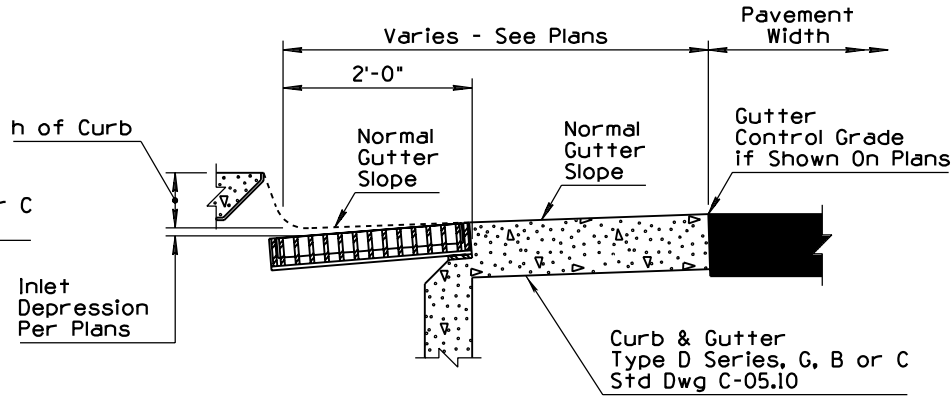
INLET DEPRESSION
CATCH BASIN WITH SLOTTED DRAIN



INLET DEPRESSION
CATCH BASIN WITH WIDE GUTTER



SECTION A-A
(Type D Curb & Gutter Shown)



SECTION B-B
(Type D Curb & Gutter Shown)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN MISCELLANEOUS DETAILS	DRAWING NO. C-15.70 Sheet 1 of 2

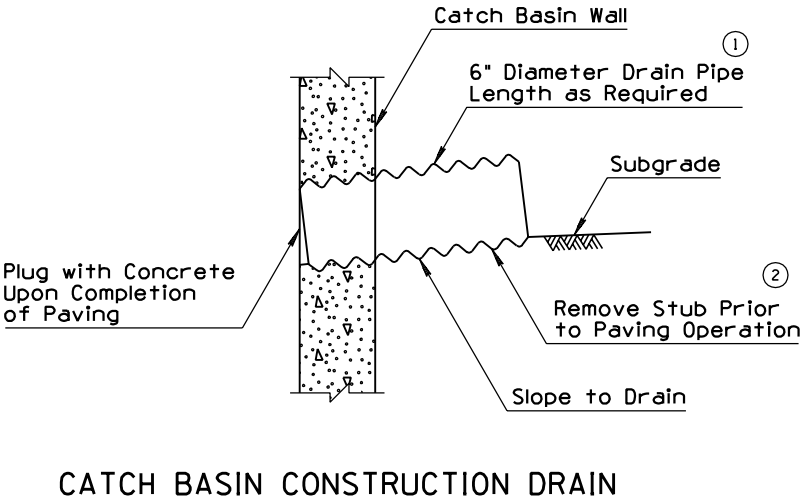
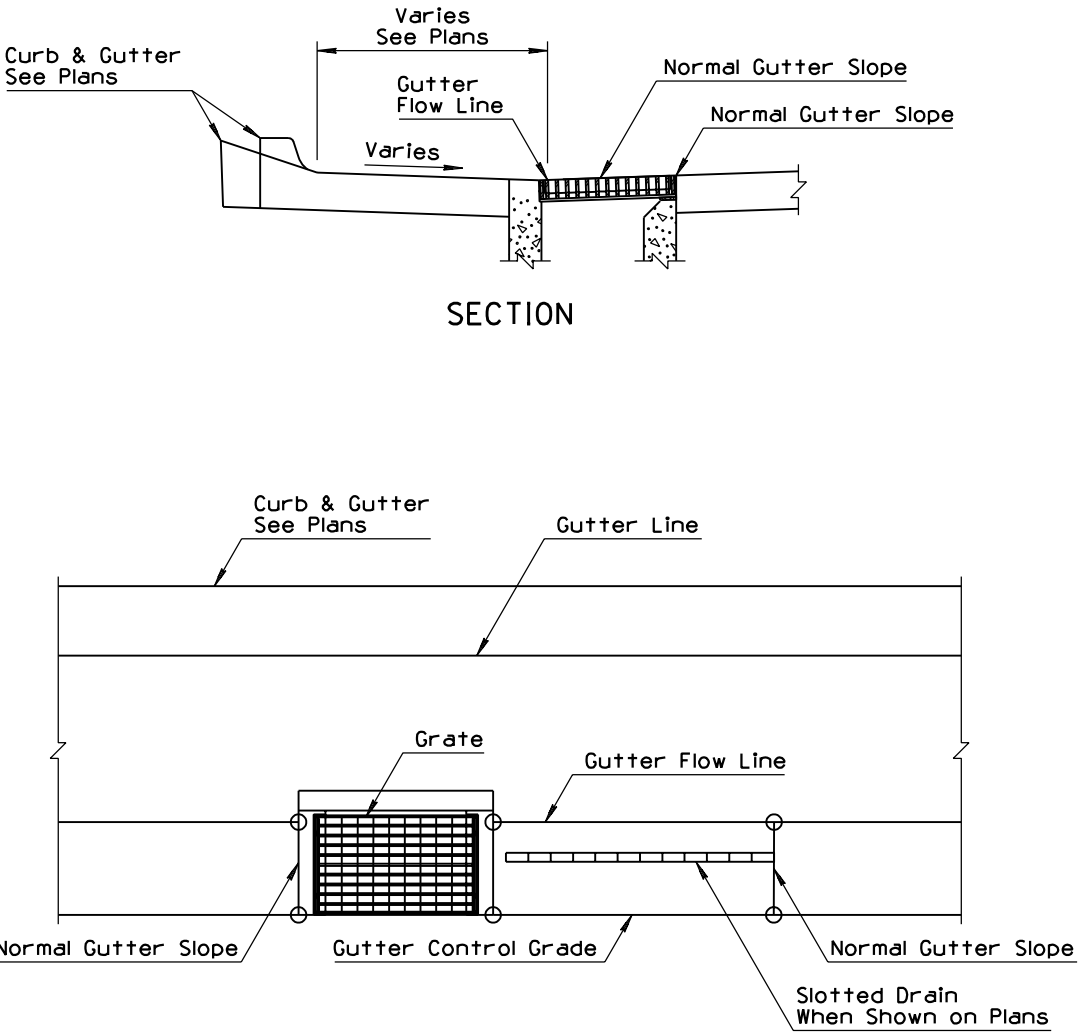
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REMOVED CMP DESIGNATION	RLF	9/04
2	ADDED NOTE	RLF	9/04
3			
4			

GENERAL NOTES

1. Construction drain may be deleted at the option of the Engineer.

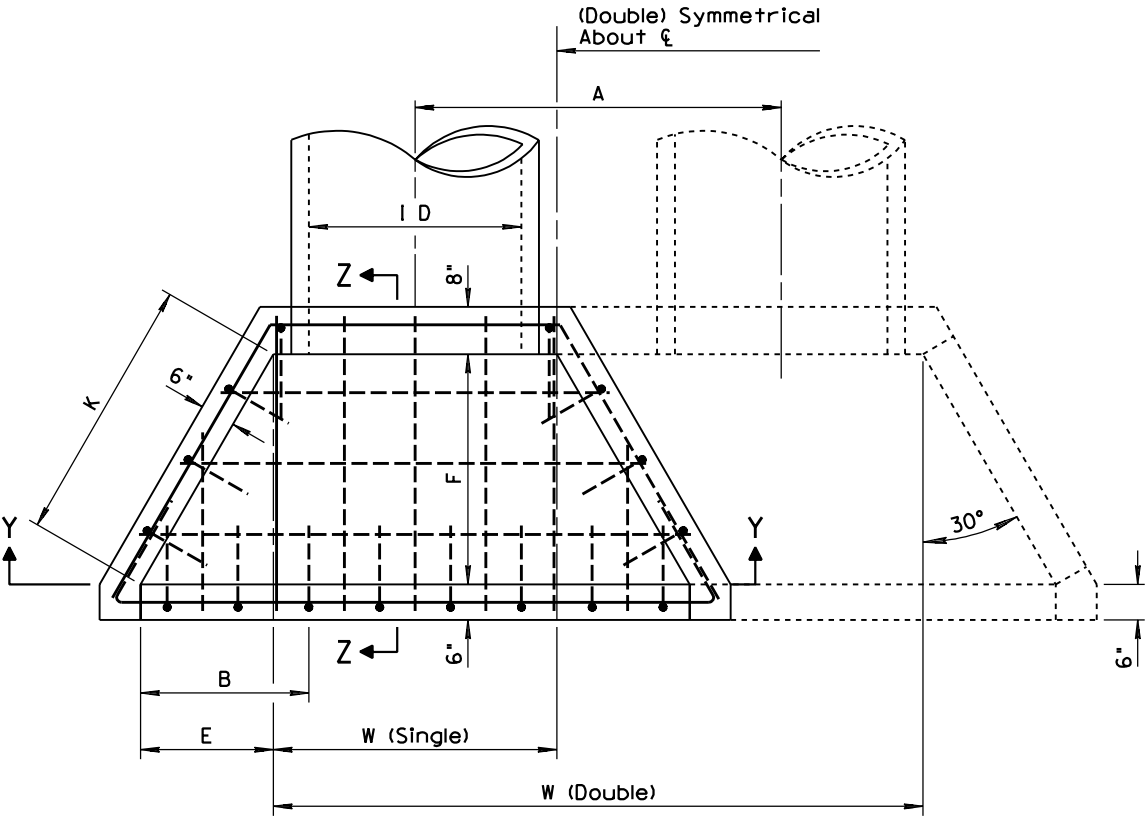
LEGEND

○ - Normal pavement or gutter flow line elevation.

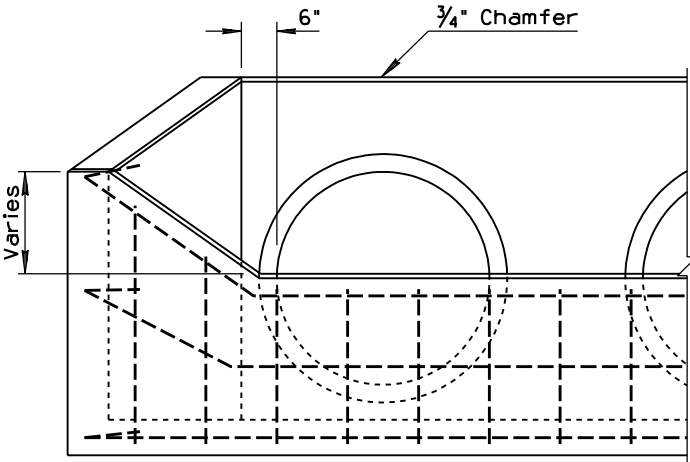


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN MISCELLANEOUS DETAILS	DRAWING NO. C-15.70 Sheet 2 of 2

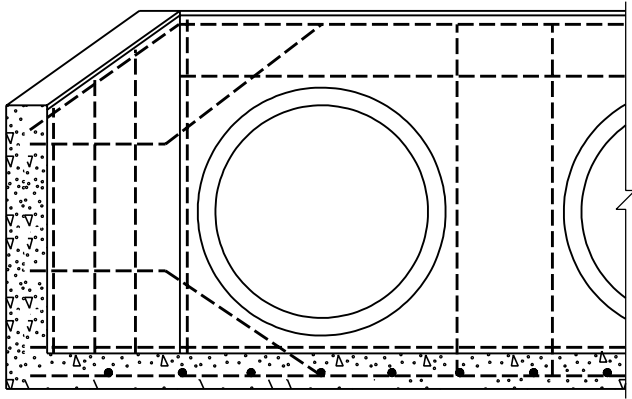
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2			
3			
4			



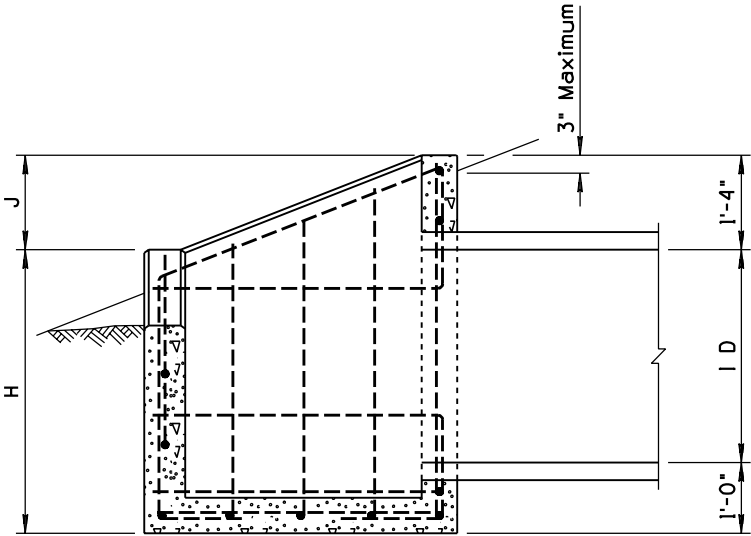
PLAN



ELEVATION



SECTION Y-Y



SECTION Z-Z

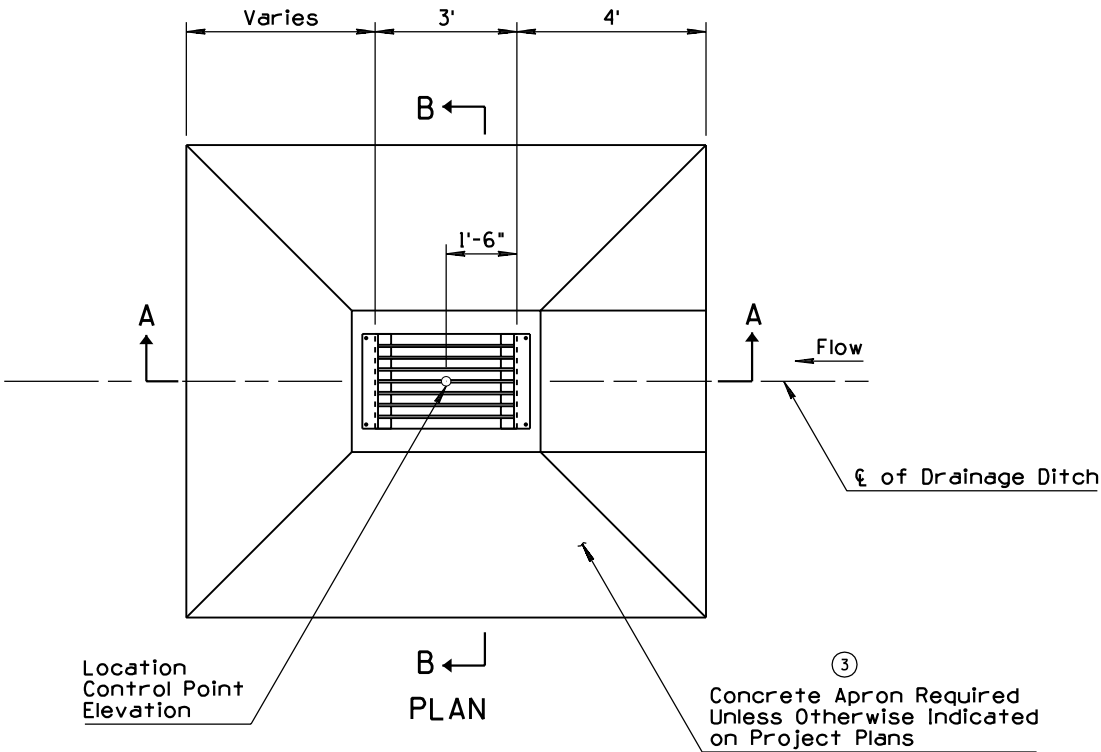
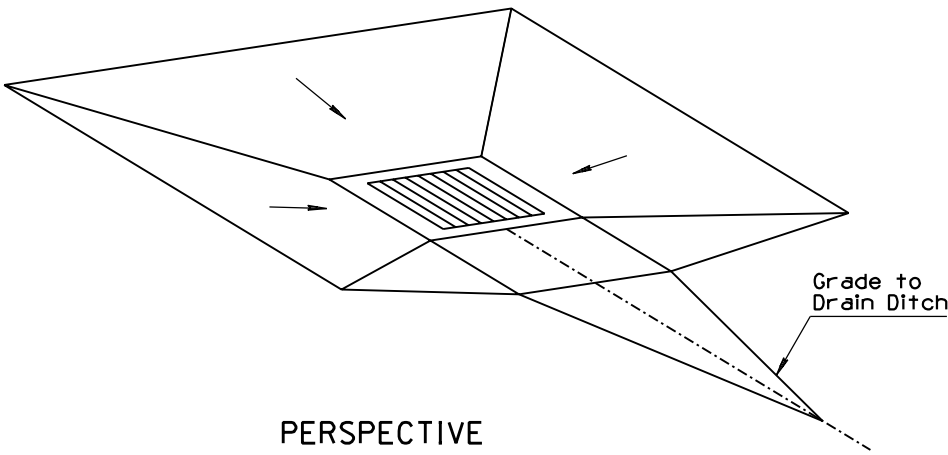
GENERAL NOTES

1. See also Std Dwg C-13.10.
2. High point of headwall shall not project more than 3" above slope.
3. All concrete shall be Class B.
4. All rebar shall be #4, 1'-0" center to center, with 3" minimum clear to inside of walls and floor.

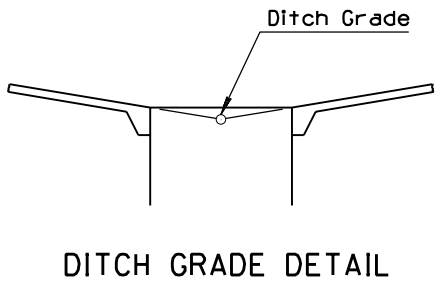
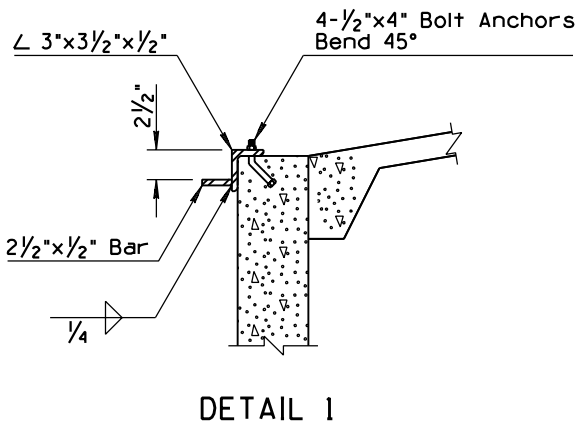
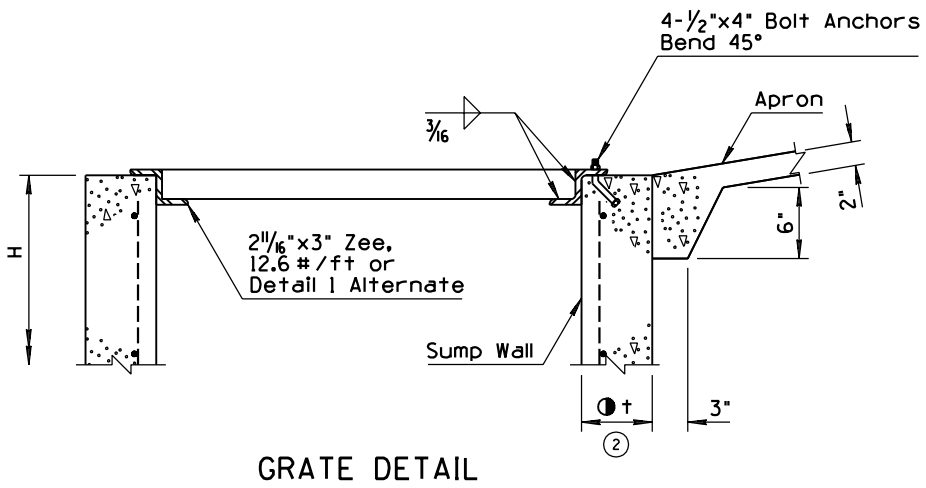
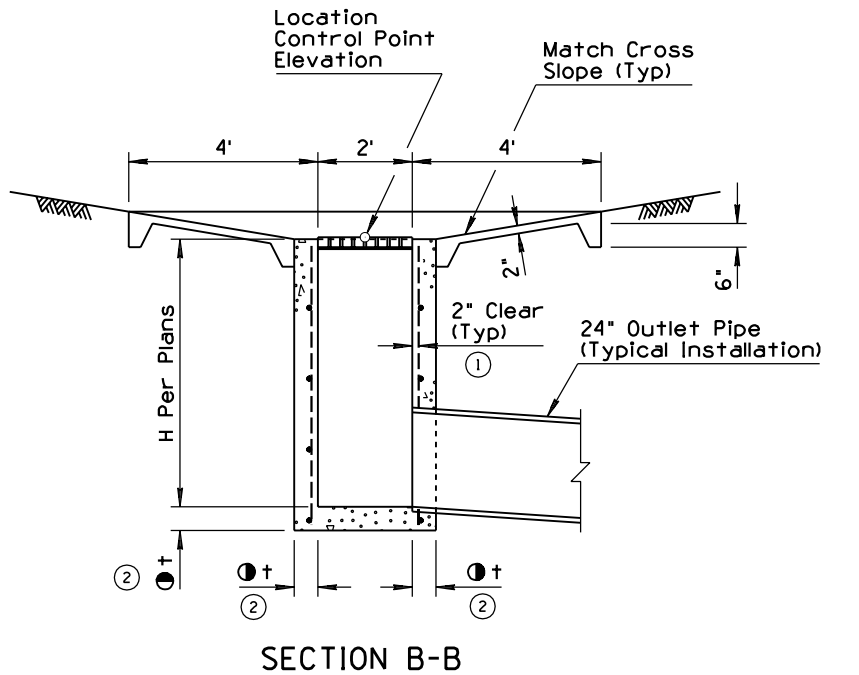
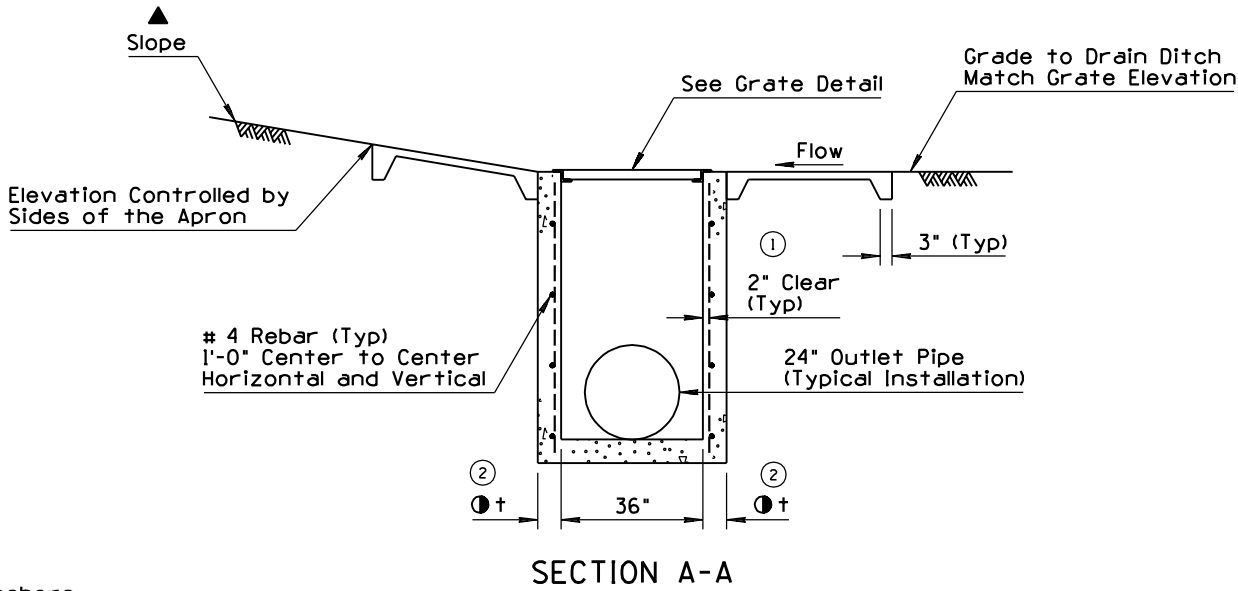
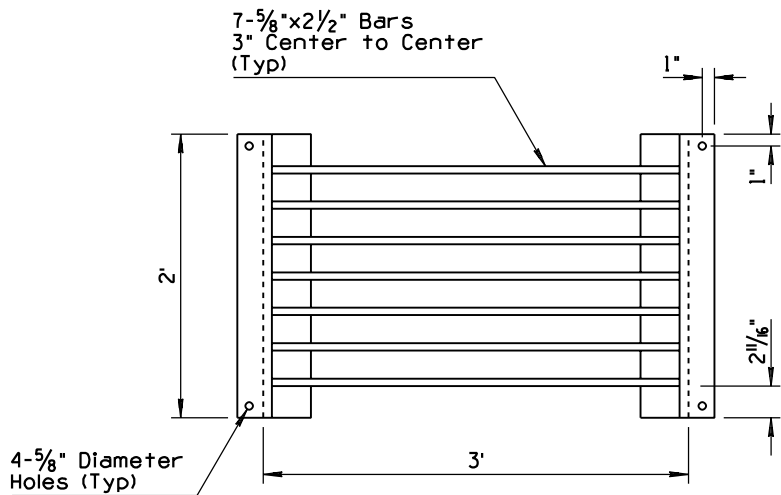
PIPE ID (In)	DIMENSIONS (F+-In)									QUANTITIES (Based on CMP Installation)			
	W		A	B	E	F	H	J	K	Concrete (CY)		Reinforcing Steel (Lbs)	
	Single	Double								Single	Double	Single	Double
18	2 -6	5 -2	2 -8	1 -3	0-9	1 -3 ⁵ / ₈	3 -1	0-9	1 -6	0.7	1.1	75	105
24	3 -0	6 -6	3 -6	1 -7 ¹ / ₂	1 -1 ¹ / ₂	1 -11 ³ / ₈	3 -5	0-11	2 -3	1.0	1.6	90	135
30	3 -6	7 -10	4 -4	2 -0	1 -6	2 -7 ¹ / ₄	3 -9	1 -1	3 -0	1.5	2.3	110	165
36	4 -0	9 -2	5 -2	2 -4 ¹ / ₂	1 -10 ¹ / ₂	3 -3	4 -0	1 -4	3 -9	2.0	3.0	145	215
42	4 -6	10 -6	6 -0	2 -9	2 -3	3 -10 ³ / ₄	4 -4	1 -6	4 -6	2.5	3.8	190	280

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>		DRAWING NO. C-15.75

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED CLEAR COVER	RLF	9/04
2	REVISED THICKNESS SPECIFICATION	RLF	9/04
3	ADDED CONCRETE REQUIREMENT	RLF	9/04
4			

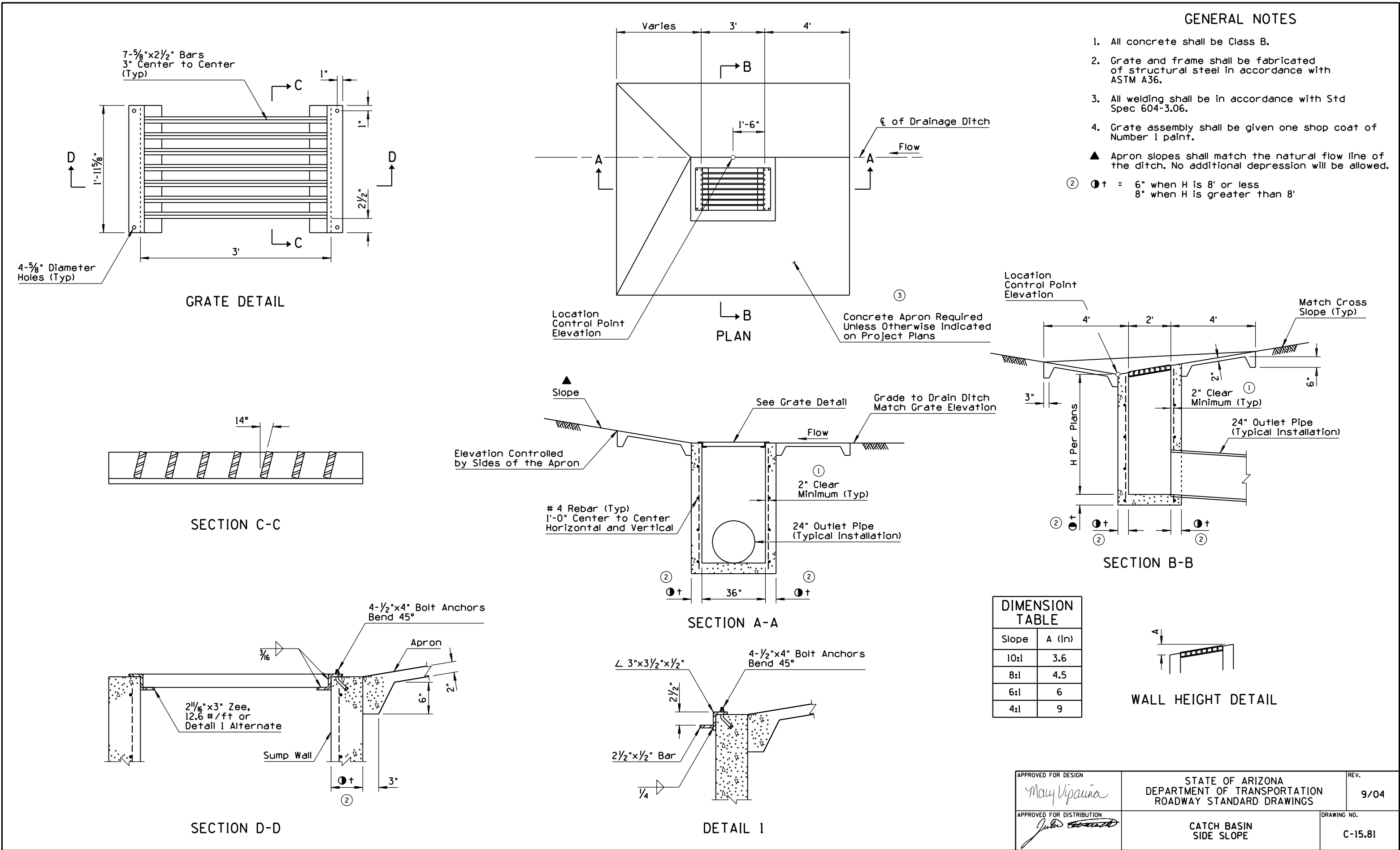


- ### GENERAL NOTES
- All concrete shall be Class B.
 - Grate and frame shall be fabricated of structural steel in accordance with ASTM A36.
 - All welding shall be in accordance with Std Spec 604-3.06.
 - Grate assembly shall be given one shop coat of Number 1 paint.
- ▲ Apron slopes shall match the natural flow line of the ditch. No additional depression will be allowed.
- ② ① + = 6" when H is 8' or less
8" when H is greater than 8'



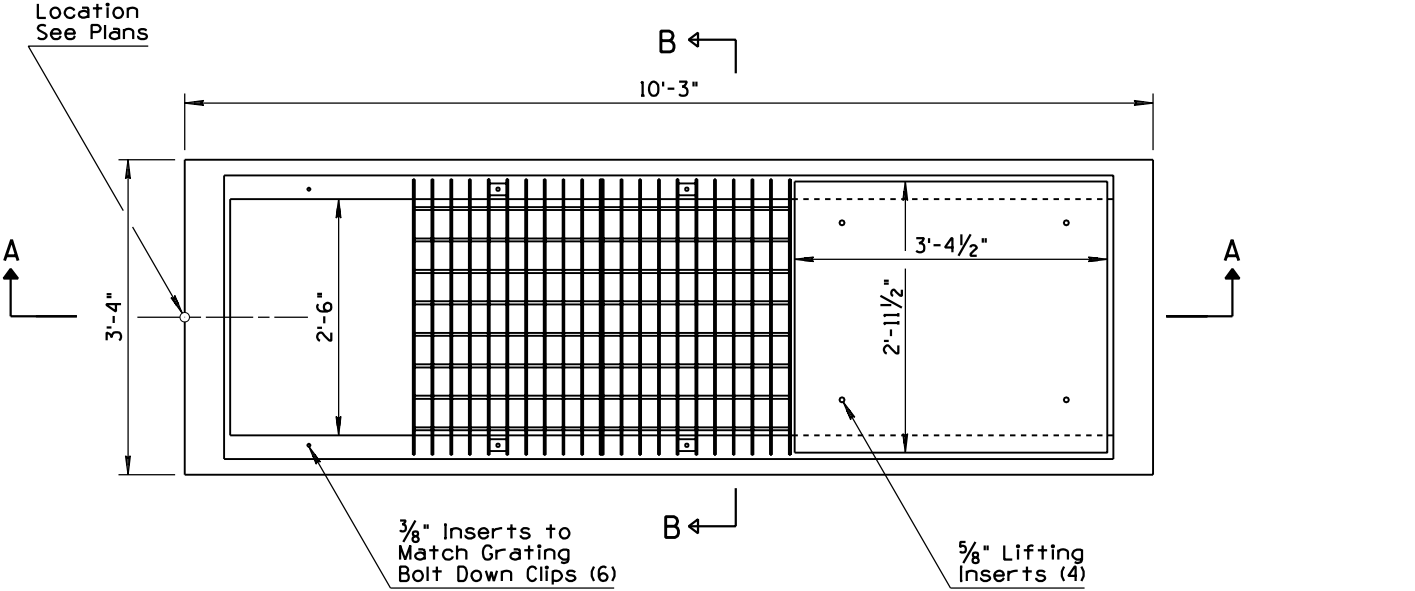
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN FLUSH	DRAWING NO. C-15.80

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED CLEAR COVER	RLF	9/04
2	REVISED THICKNESS SPECIFICATION	RLF	9/04
3	ADDED CONCRETE REQUIREMENT	RLF	9/04
4			

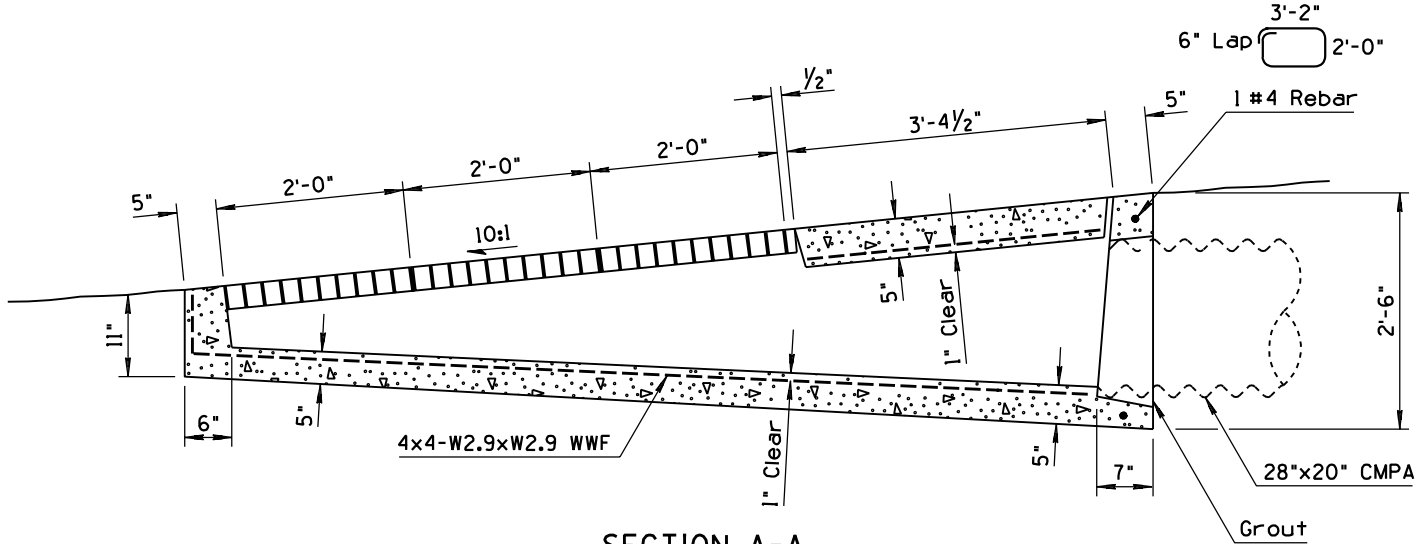


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN SIDE SLOPE	DRAWING NO. C-15.81

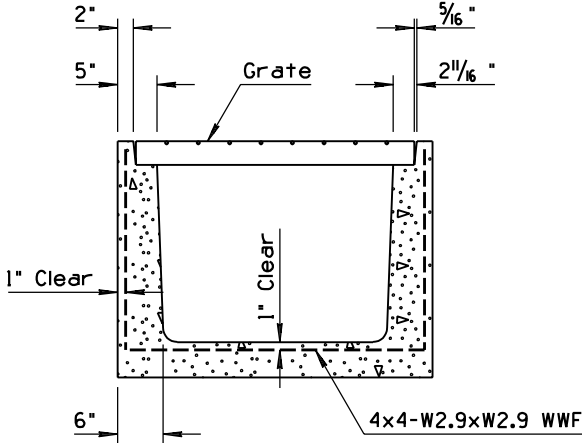
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			



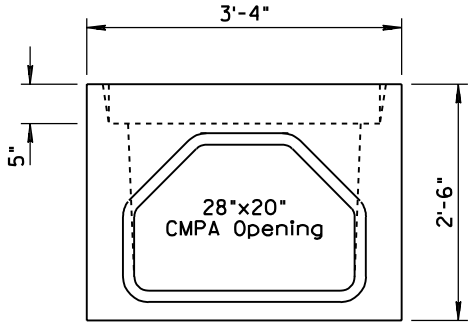
PLAN



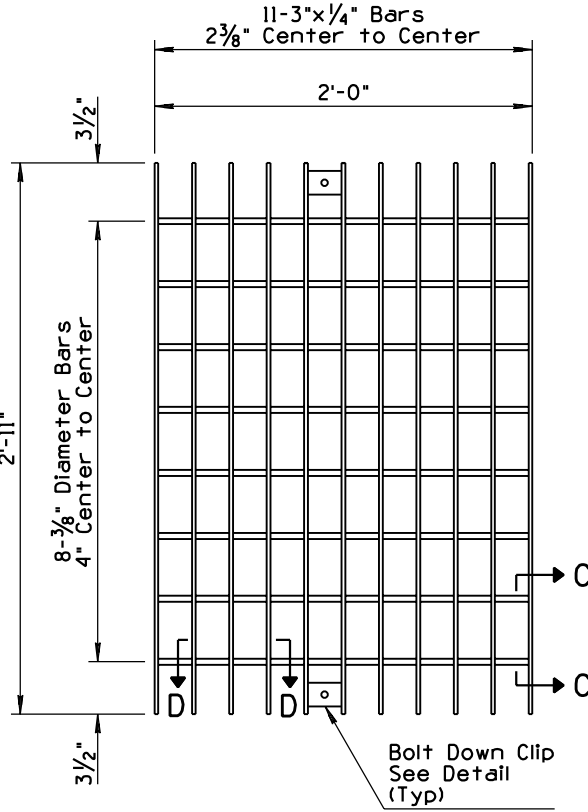
SECTION A-A



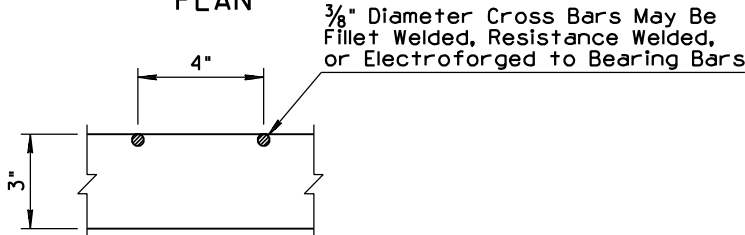
SECTION B-B



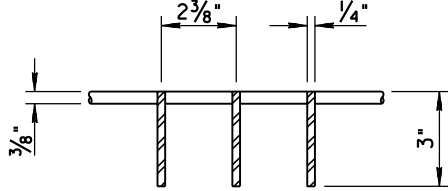
END VIEW



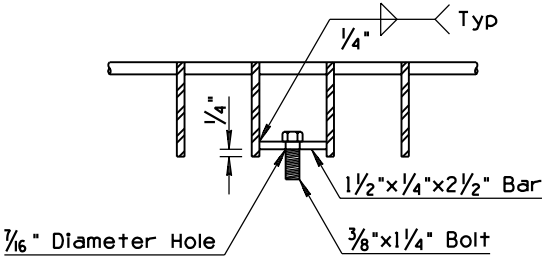
PLAN



SECTION C-C



SECTION D-D



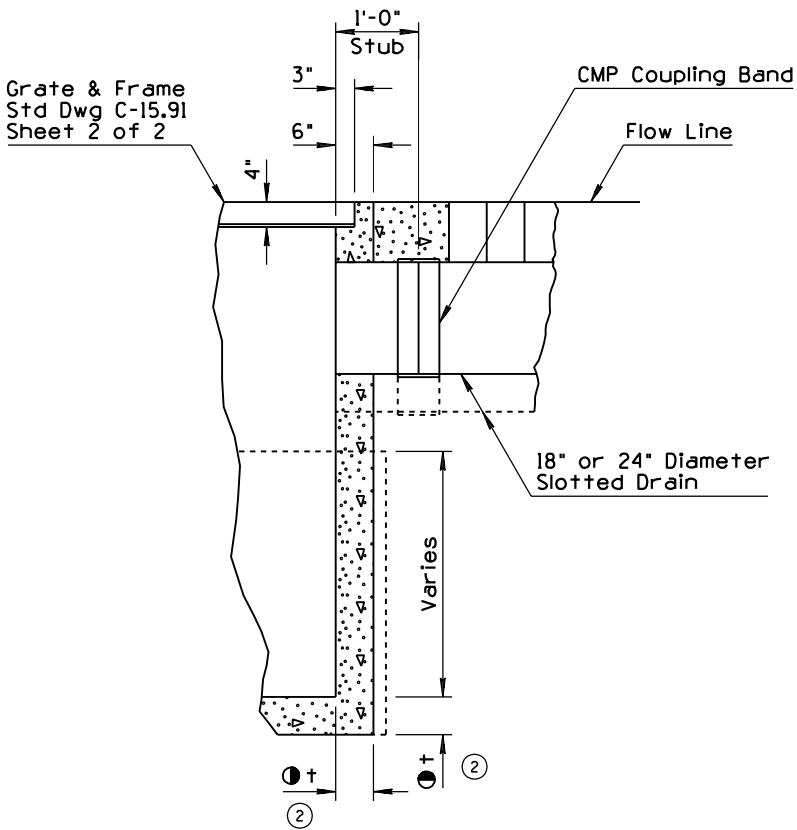
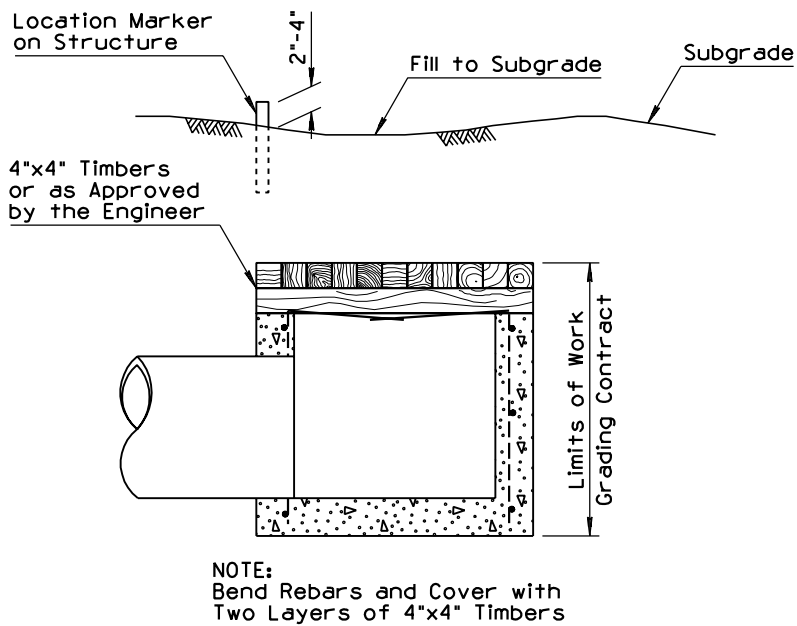
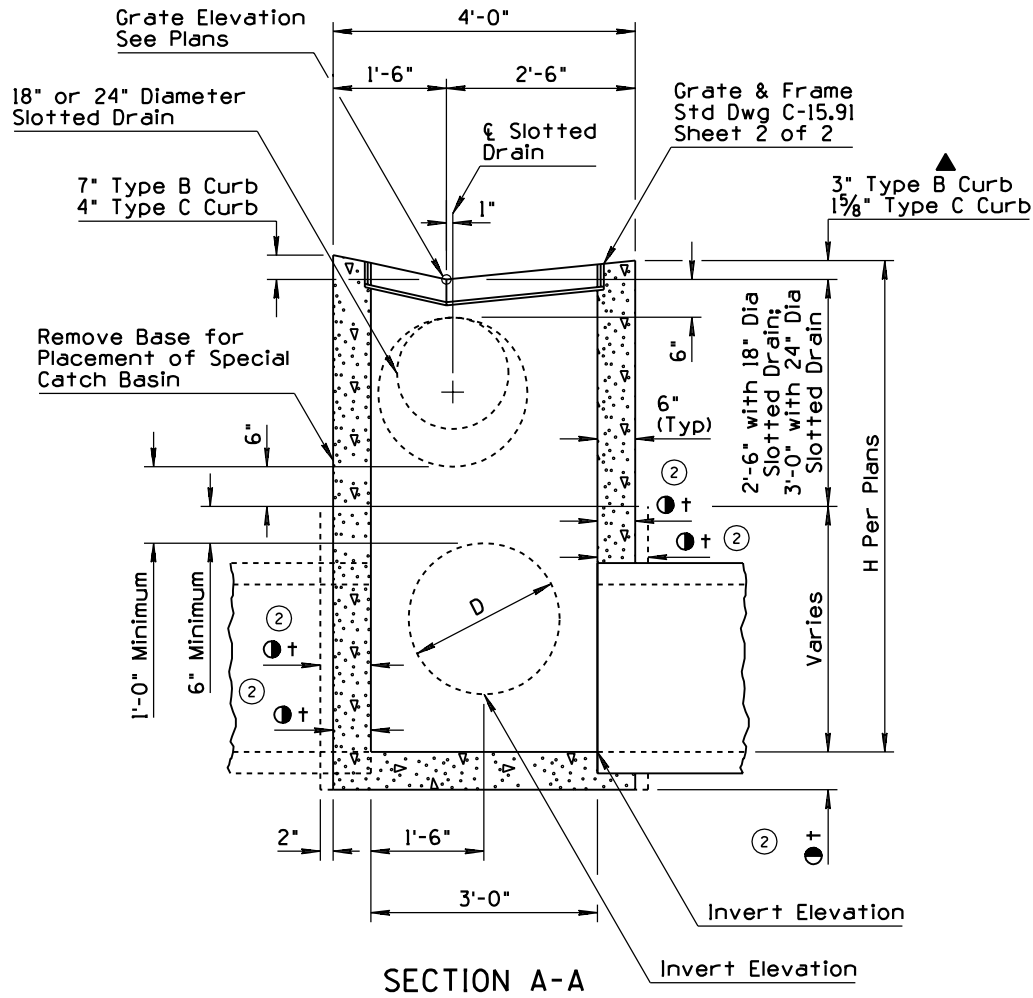
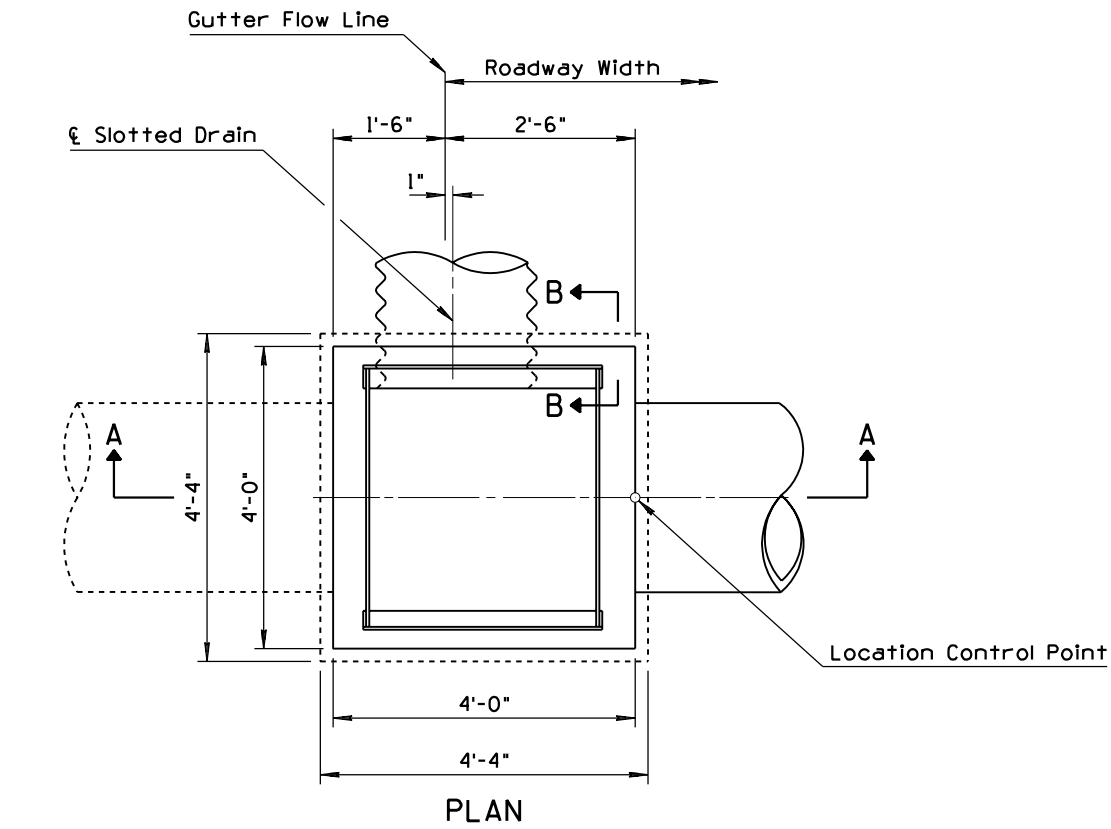
BOLT DOWN CLIP DETAIL

GENERAL NOTES

- Concrete shall conform to the requirements for Class S Concrete. The minimum strength shall be 4000 psi.
- Grout shall be in accordance with the Std Specs except water content shall be such that the consistency is proper for smooth trowling.
- All welding shall be in accordance with Std Spec 604-3.06.
- The completed grate shall be given one shop coat of Number 1 paint.
- Foundation soil and backfill shall be in accordance with Std Spec 203-5.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN MEDIAN DIKE PRECAST	DRAWING NO. C-15.90

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED PREVIOUS GENERAL NOTE* 2	RLF	7/01
2	REVISED THICKNESS SPECIFICATION	RLF	9/04
3			
4			

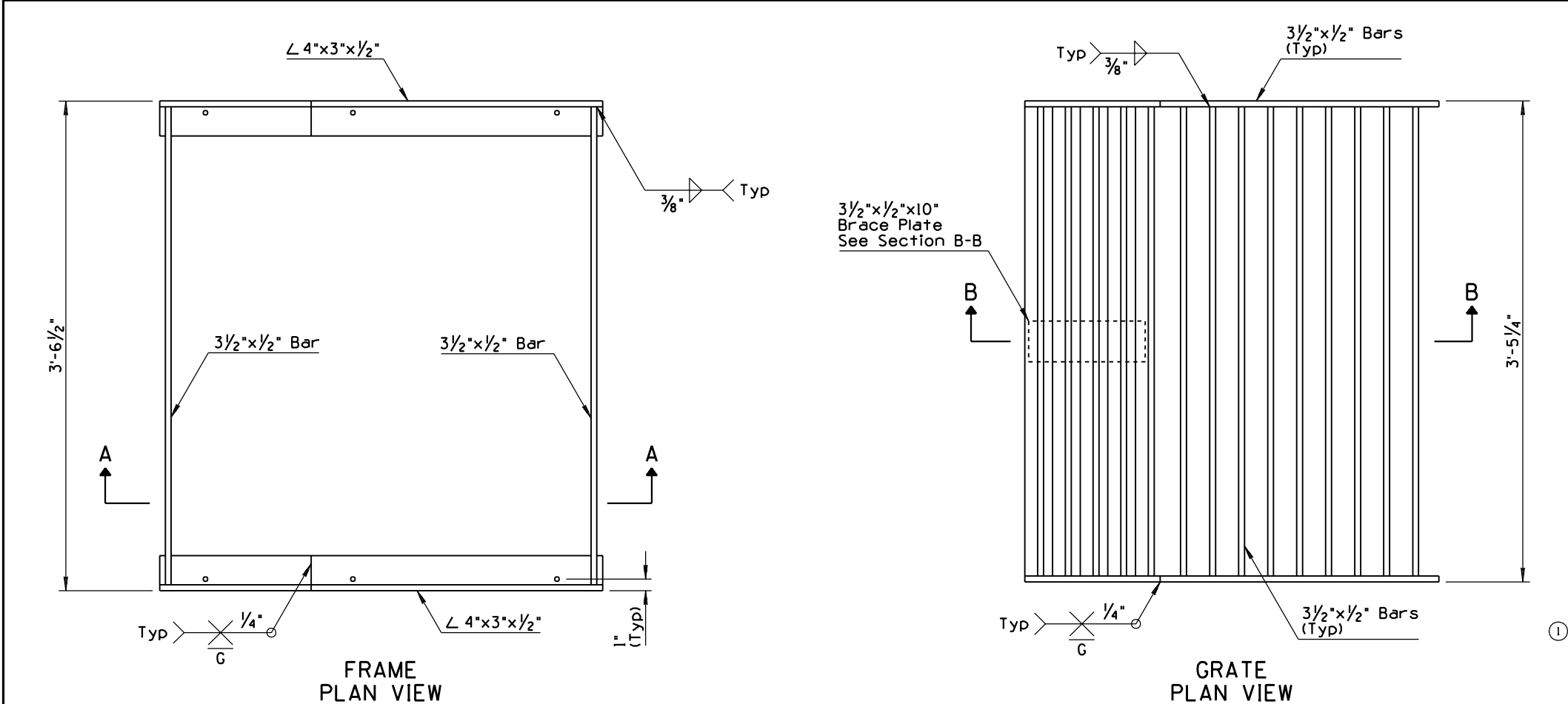


GENERAL NOTES

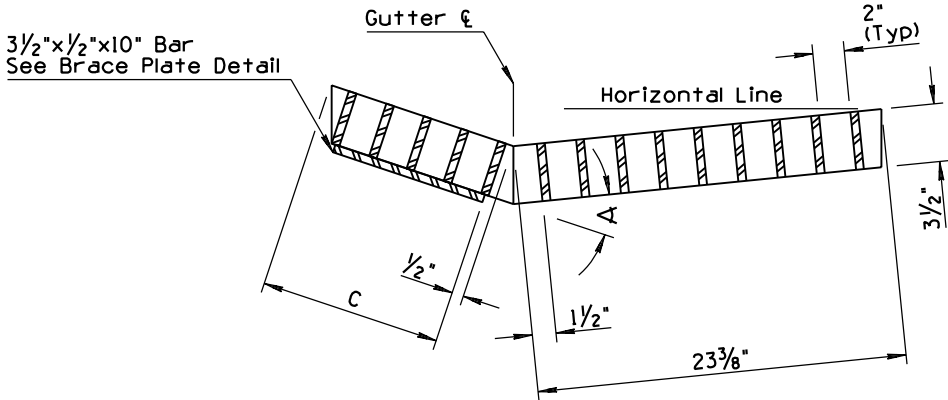
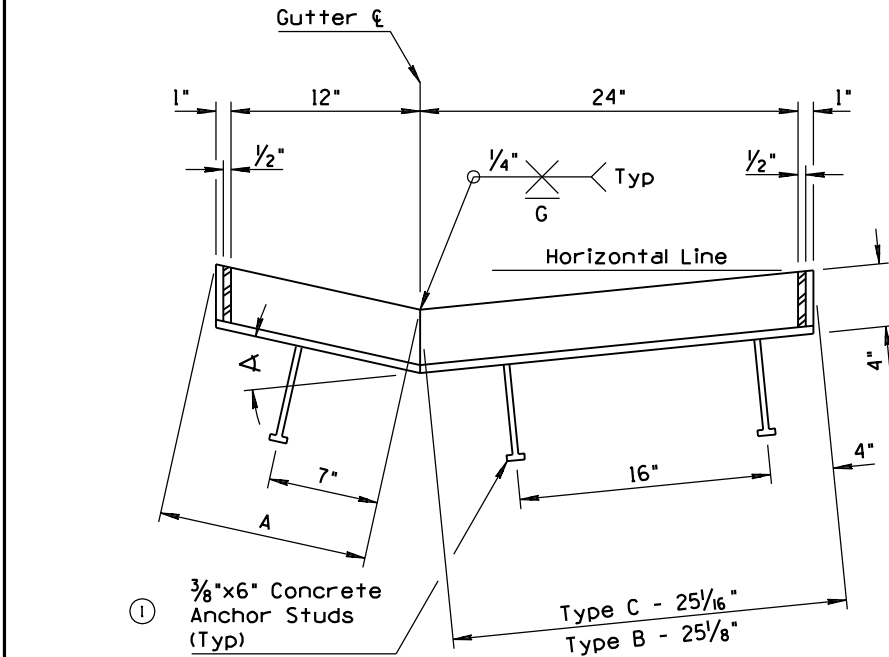
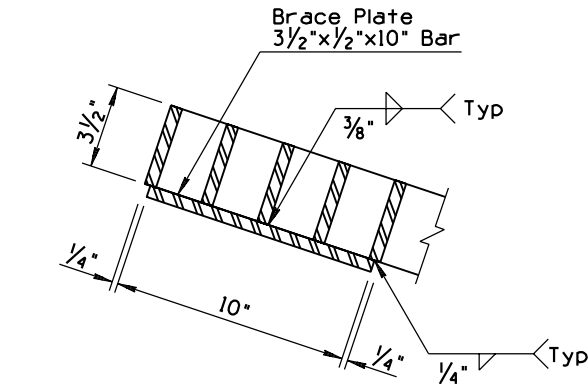
- All concrete shall be Class B.
 - All rebar shall have 2" minimum clear cover unless otherwise noted.
 - #4 rebar shall be placed 12" center to center horizontal & vertical in walls.
 - Pipe may be placed in any wall.
 - See Std Dwgs C-13.60 and C-13.65 for more information and dimensions of slotted drains.
- ▲ Includes 1" Inlet Depression
- ② ①+ = 6" when H is 8' or less
8" when H is greater than 8'

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/01
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FREeway CATCH BASIN DETAILS	DRAWING NO. C-15.91 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED CONCRETE ANCHOR STUD LENGTH	RLF	9/04
2	REARRANGED GENERAL NOTES	RLF	9/04
3			
4			



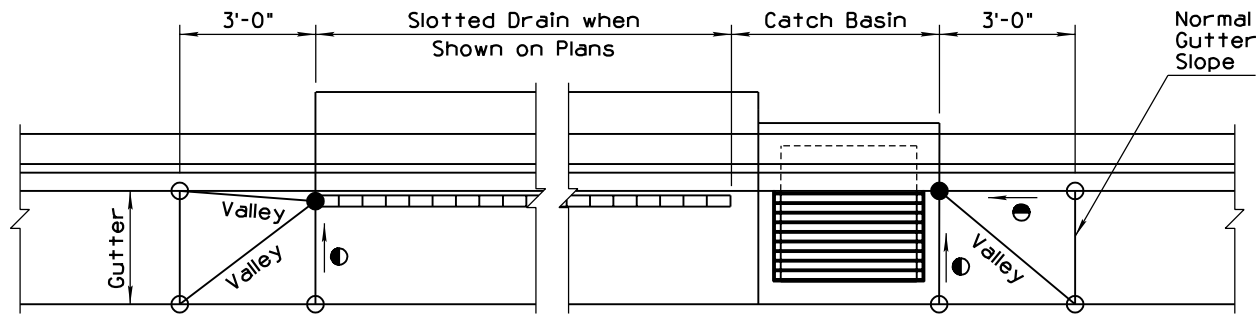
GRATE AND FRAME DIMENSIONS						
Type	Curb Height (in)	Gutter Width (ft-in)	Catch Basin Frame		Catch Basin Grate	
			A (in)	∠	C (in)	∠
B	6	2-6	13 5/16	26°-57'-40"	12 1/16	26°-57'-40"
C	3	2-6	13 5/16	15°-37'-45"	11 7/8	15°-37'-45"



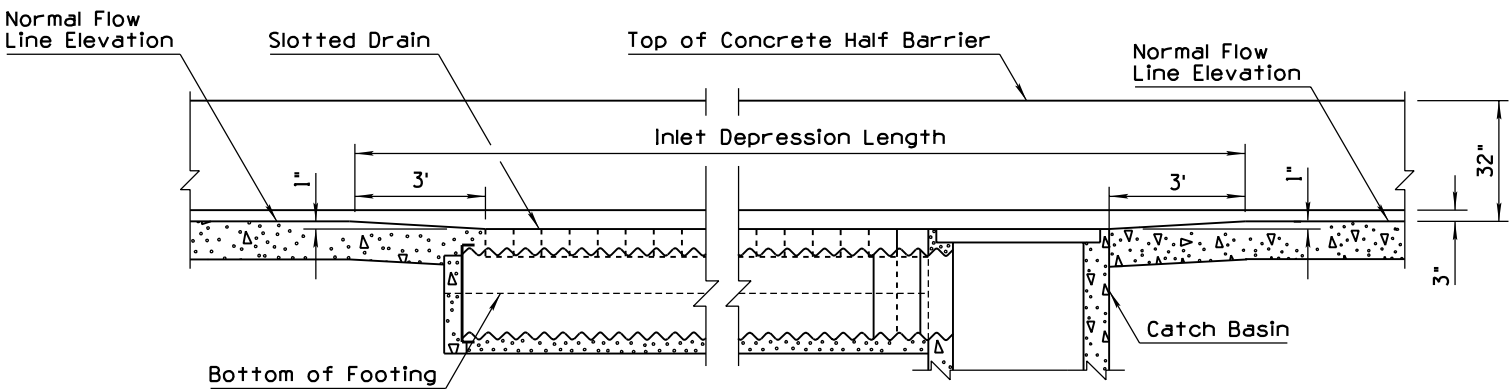
- ② **GENERAL NOTES**
- All structural steel shall be in accordance with ASTM A36.
 - All welding shall be in accordance with Std Spec 604-3.06.
 - The completed grate assembly (frame & grate) shall be given two shop coats of Number 1 paint.
- NOTE TO DESIGNERS**
- Grate design is not suitable for locations subject to bicycle traffic.

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FREEWAY CATCH BASIN DETAILS	DRAWING NO. C-15.9I Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

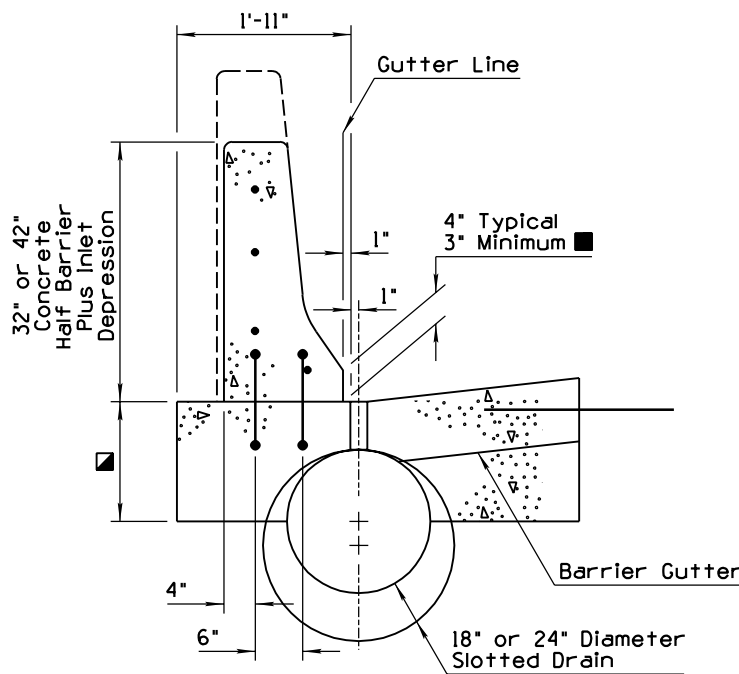


PLAN

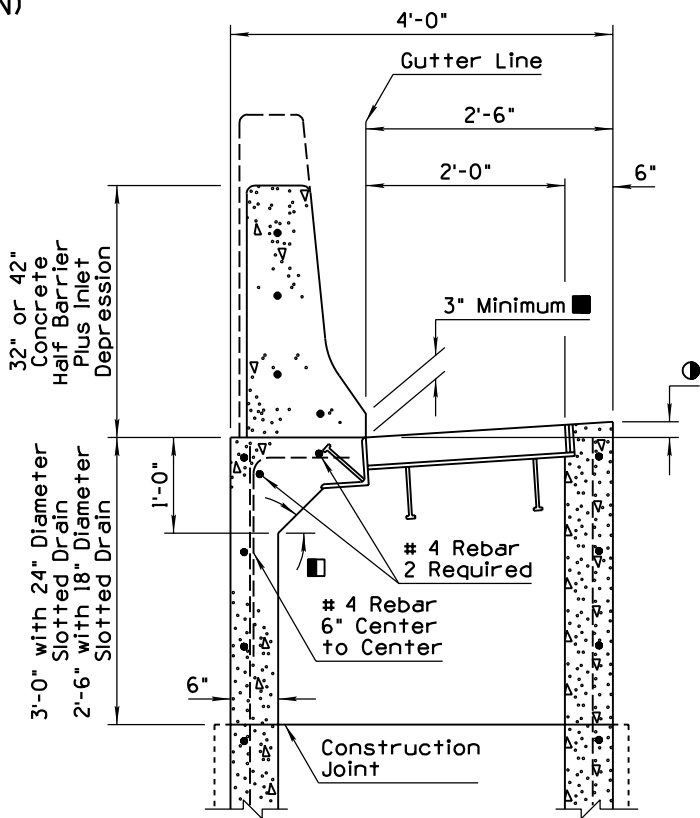


ELEVATION

INLET DEPRESSION
CONCRETE HALF BARRIER AND CATCH BASIN WITH SLOTTED DRAIN
(18" CMP AND 32" CONCRETE BARRIER SHOWN)



HALF BARRIER INSTALLATION
AT SLOTTED DRAIN LOCATIONS



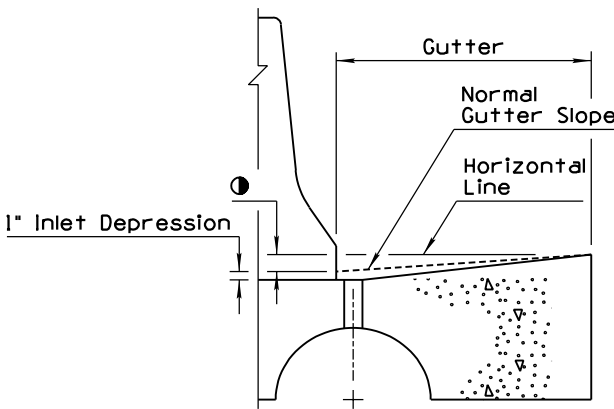
CATCH BASIN WITH HALF BARRIER

GENERAL NOTES

- See Std Dwg C-15.91 for dimensions, sizes and details not shown for construction of catch basin.
 - See Std Dwgs C-10.52 and C-10.53 for dimensions, sizes and details not shown for construction of barrier.
 - See Std Dwg C-13.60 for dimensions, sizes and details not shown for construction of slotted drain.
 - Only longitudinal reinforcing steel shall be placed in Half Barrier within 1' of catch basin frame. S-shape bars shall not be placed in the rear wall of the catch basin.
- 1'-3" for 18" diameter slotted drain
1'-6" for 24" diameter slotted drain
 - Angle varies, approximately 45°
 - Varies in increased height over catch basin and slotted drain inlet depression
 - Depressed elevation.
 - Normal pavement or gutter flow line elevation.
 - Match adjacent gutter depression. Additional inlet depression as specified
 - Straight grade with downward slope.

NOTE TO DESIGNERS

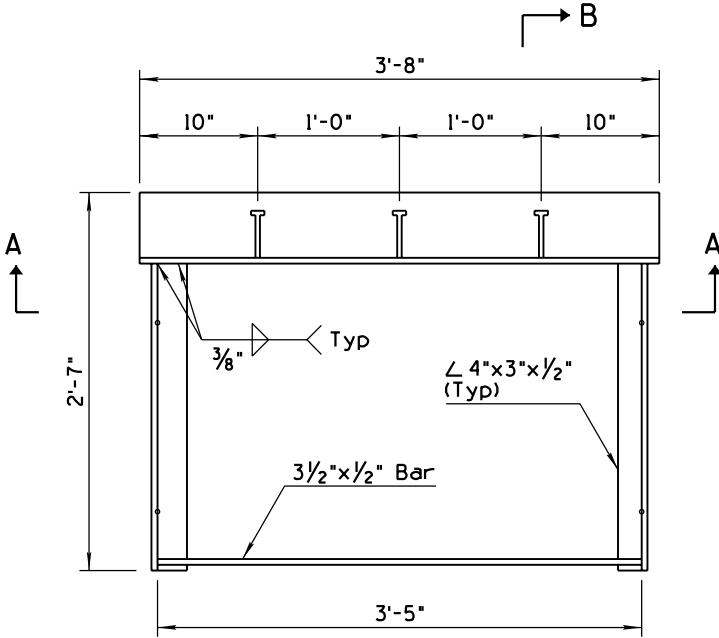
Grate design shown is not suitable for locations subject to bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.



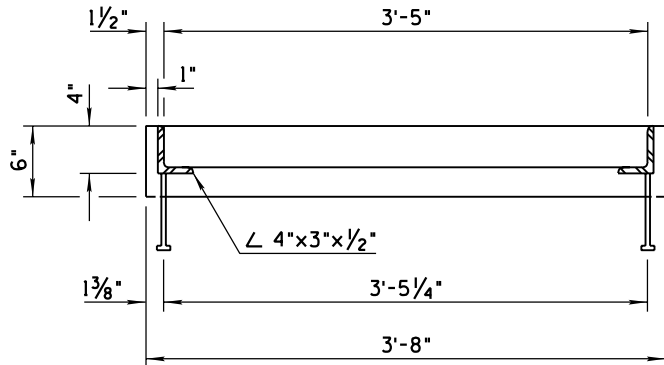
GUTTER DEPRESSION
AT SLOTTED DRAIN LOCATIONS

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER	DRAWING NO. C-15.92 Sheet 1 of 2

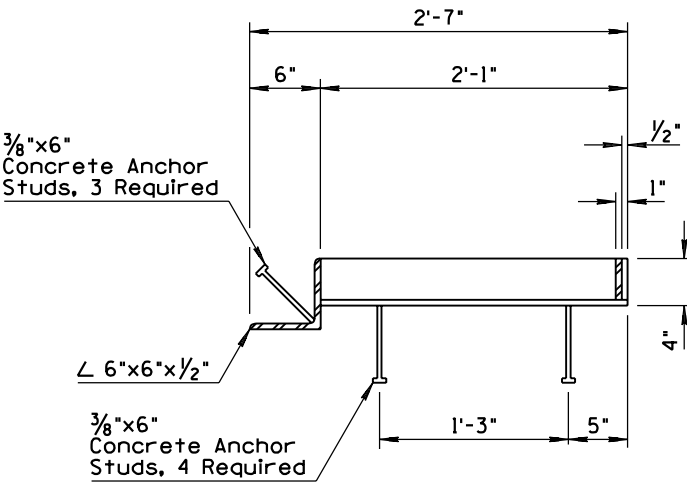
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



PLAN

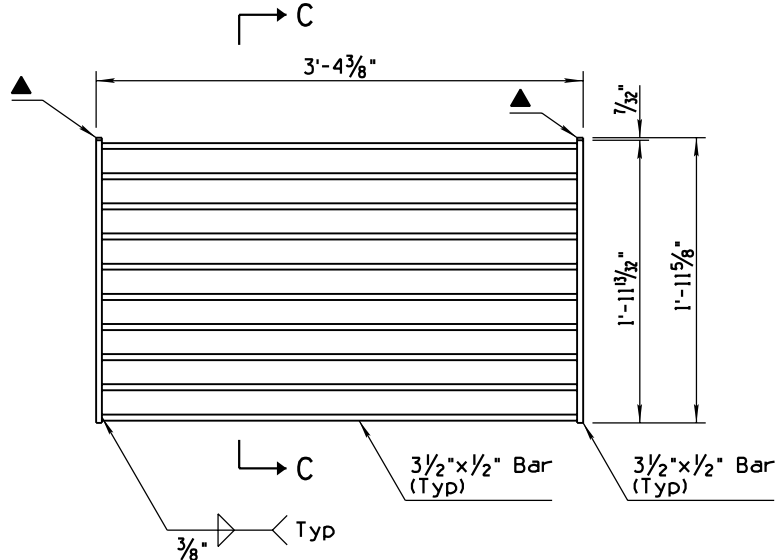


SECTION A-A

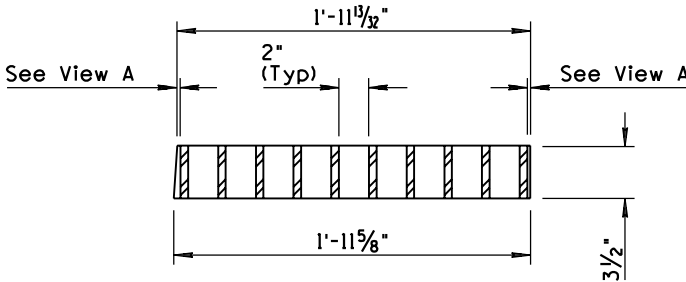


SECTION B-B

FRAME

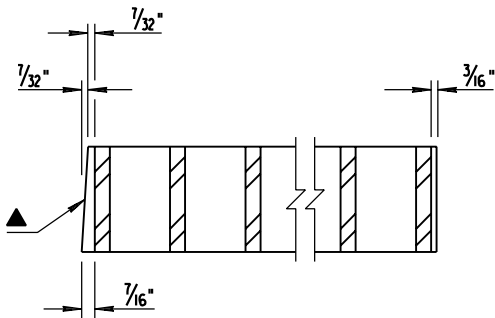


PLAN



SECTION C-C

GRATE



View A

GENERAL NOTES

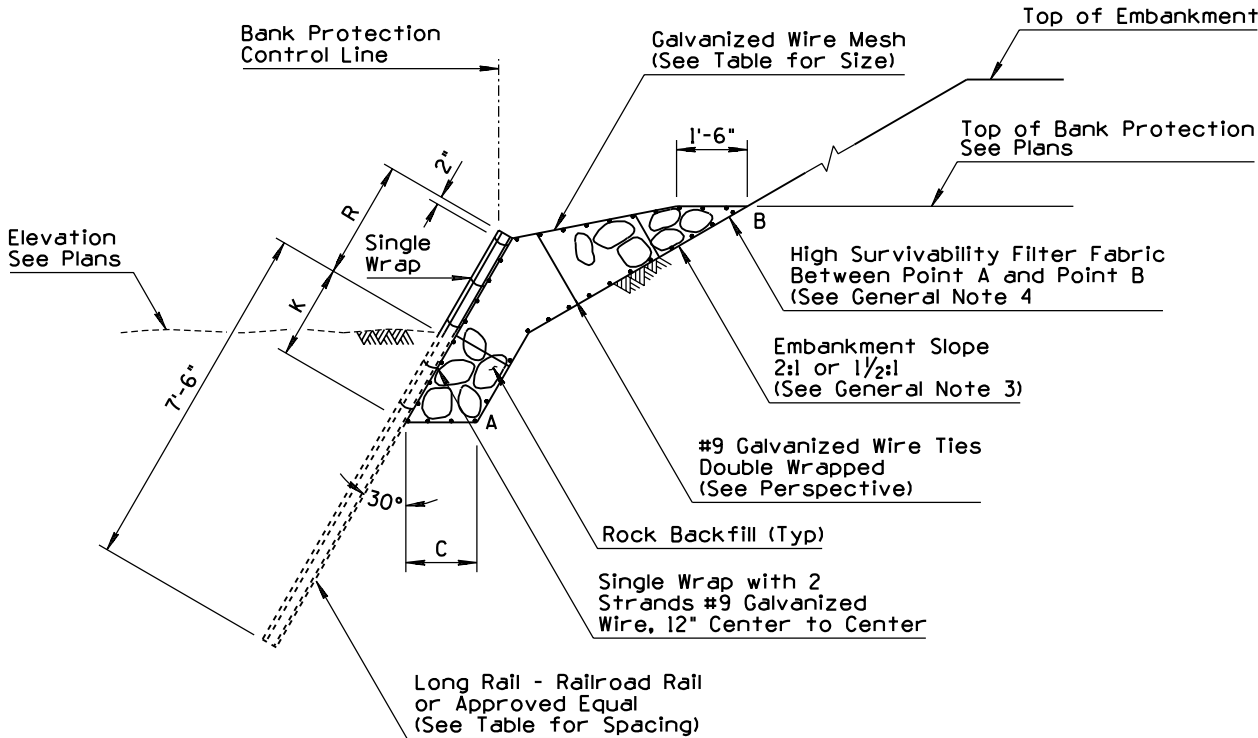
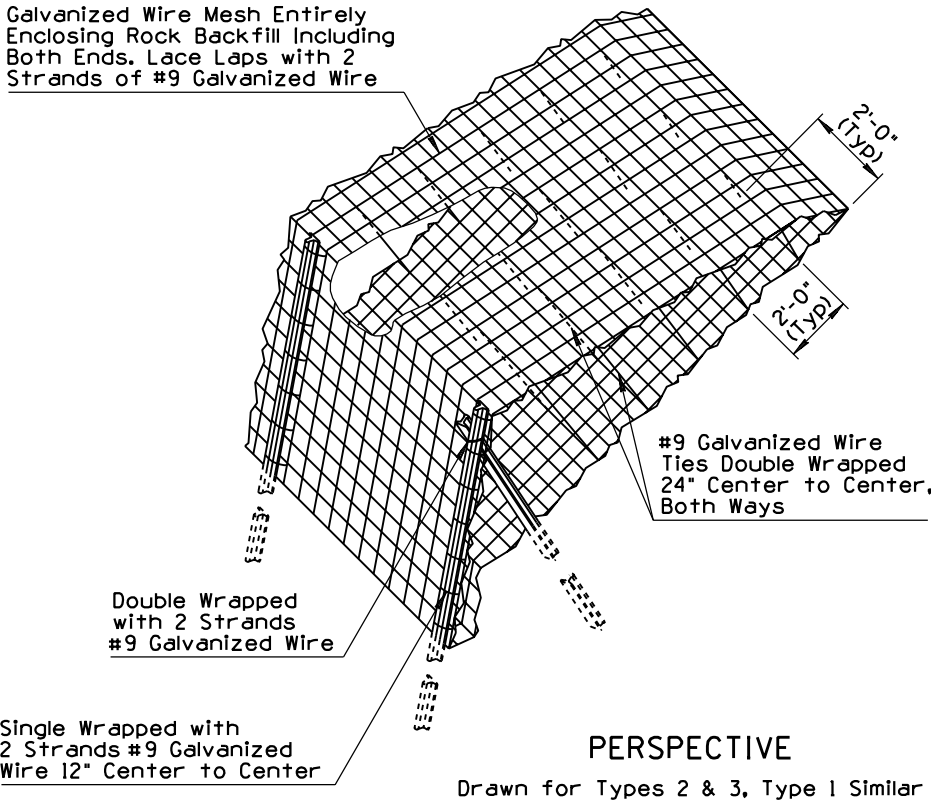
1. All welding shall be in accordance with Std Spec 604-3.06.
 2. Grate opening for grate shown is 4.75 Sq Ft.
 3. All welding shall be in accordance with Std Spec 604-3.06.
- ▲ Beveled side of grate toward barrier

NOTE TO DESIGNERS

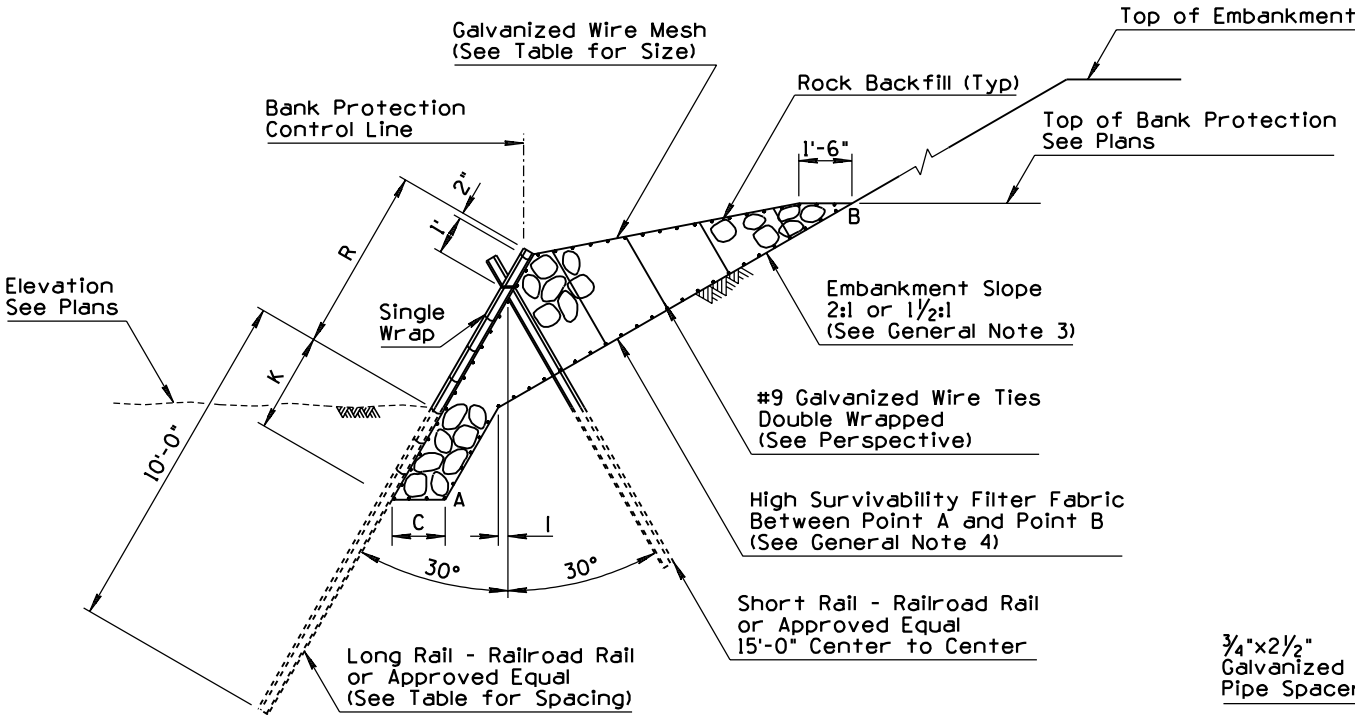
Grate design shown is not suitable for locations subject to bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER	DRAWING NO. ① C-15.92 Sheet 2 of 2

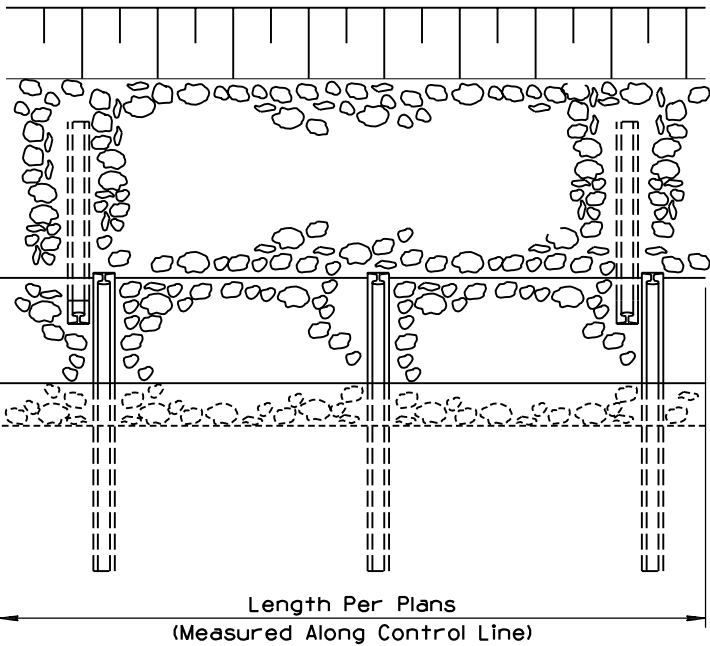
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD	RLF	9/04
2			
3			
4			



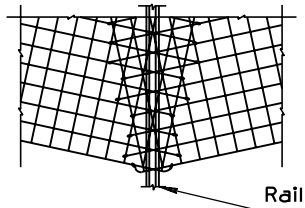
TYPE 1 BANK PROTECTION



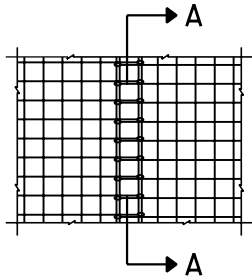
TYPE 2 AND 3 BANK PROTECTION



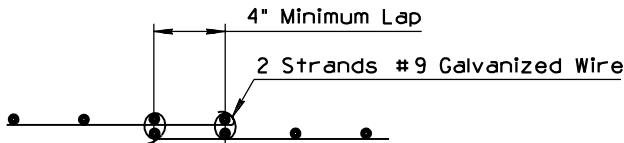
PLAN OF CHANNEL BANK PROTECTION



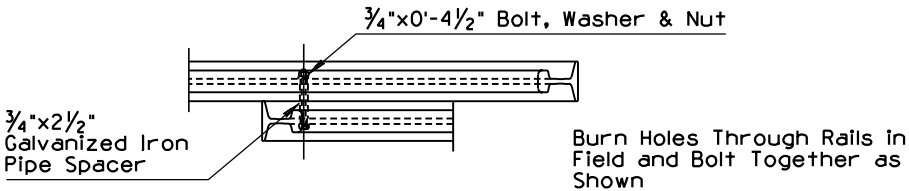
ELEVATION AT CHORD POINT ON CURVE



ELEVATION ON STRAIGHT SECTION



SECTION A - A
WIRE MESH SPLICE DETAILS

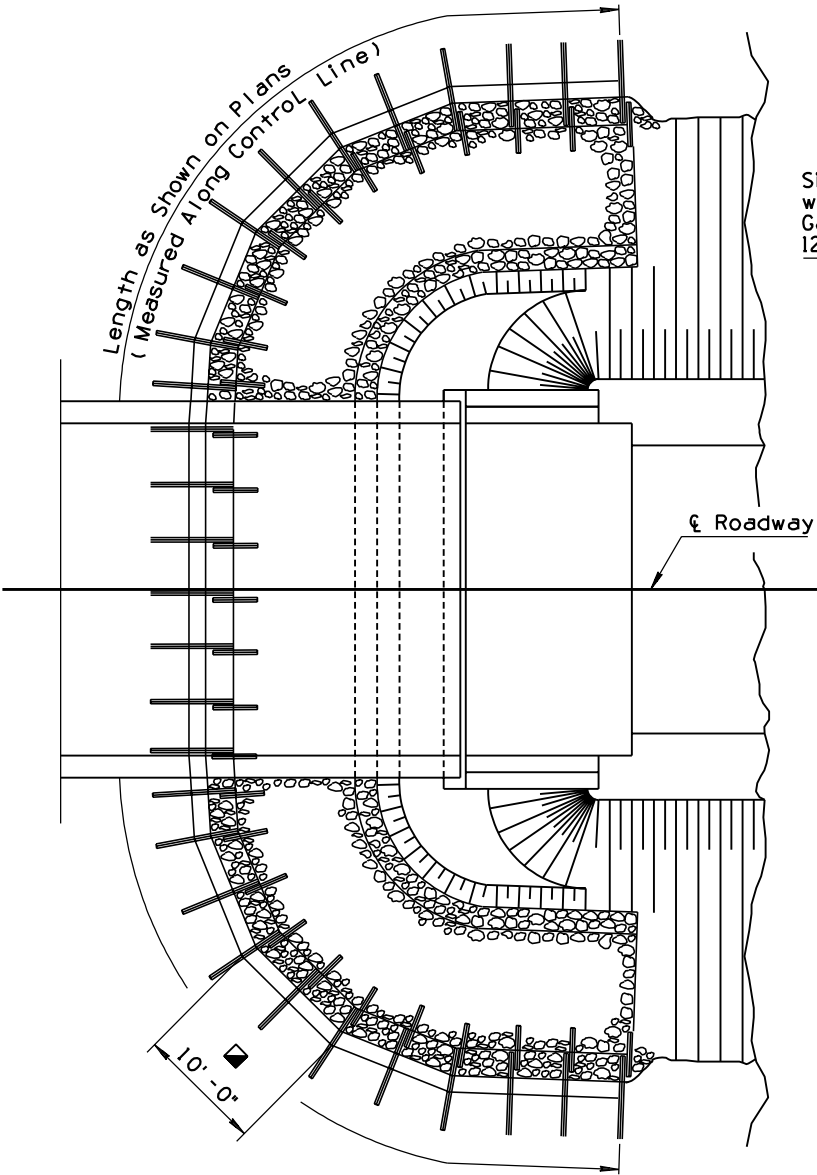


RAIL CONNECTION DETAIL

Type	SHORT RAIL LENGTH (Ft)	SHORT RAIL WT (Lbs/Yd)	LONG RAIL LENGTH (Ft)	LONG RAIL WT (Lbs/Yd)	LONG RAIL SPACING (Ft-In) (Center to Center)	MESH DESIGNATION	C (Ft-In)	I (Ft)	K (Ft-In)	R (Ft-In)	TOP OF BANK PROTECTION ABOVE THE STREAM BED (Ft)
1	N/A	N/A	10	20 Min	7-0	3"x3"-W1.4/W1.4	1-6	0	2-0	2-6	2 to 4
2	10	20 Min	15	50 Min	7-6	or	1-6	0	3-0	5-0	4 to 7
3	12	20 Min	17	50 Min	7-6	4"x4"-W1.4/W1.4	2-0	1	4-0	7-0	6 to 12

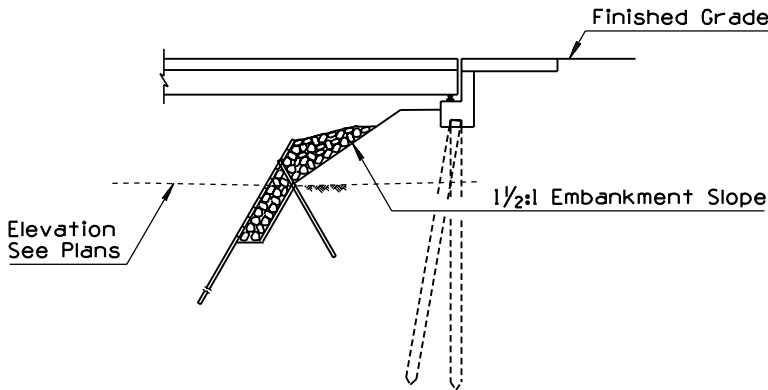
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① RAIL BANK PROTECTION FOR DRAINAGEWAYS TYPES 1, 2 & 3	DRAWING NO. C-17.10

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			

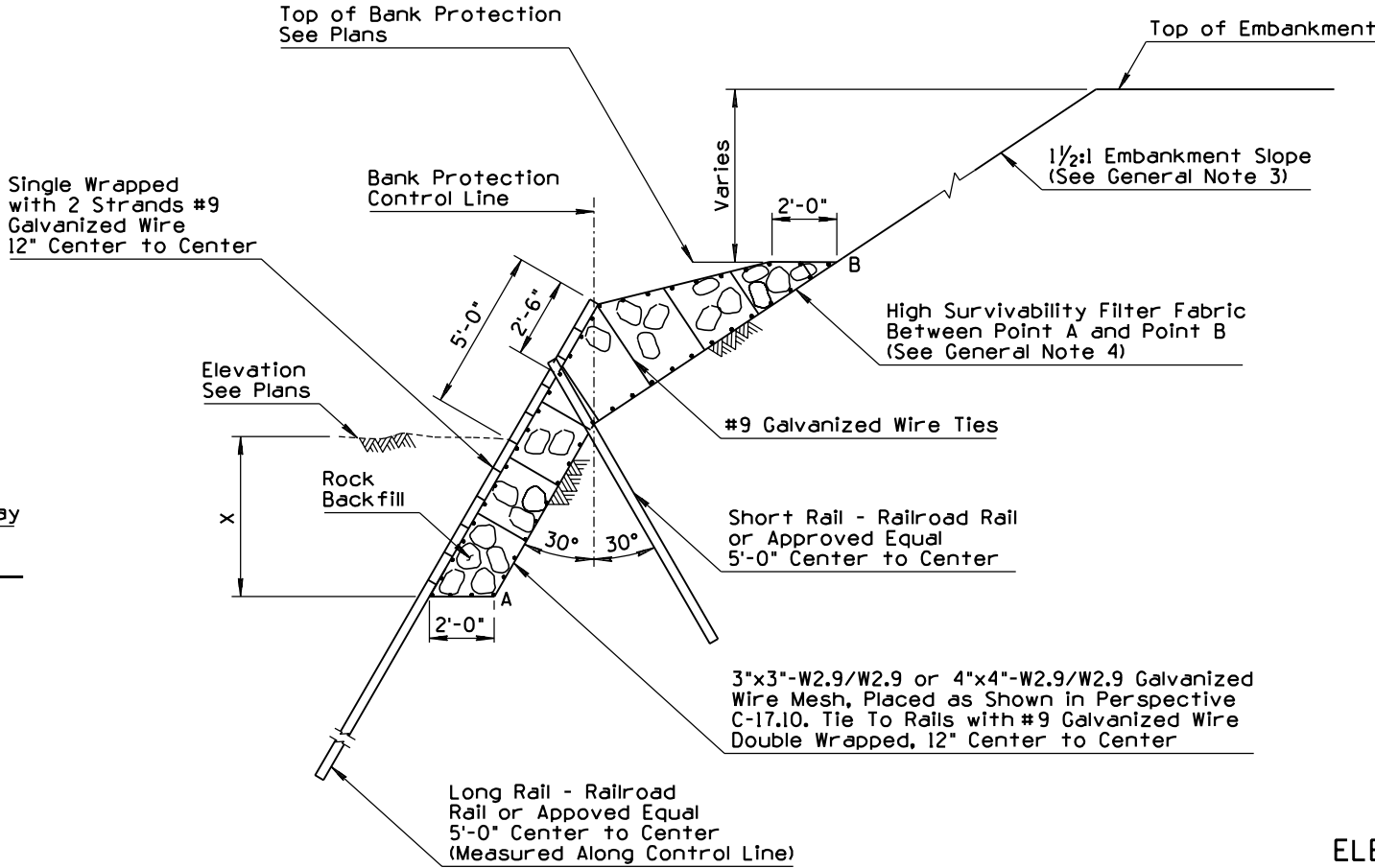


Construct on Two Panel Chords Around Curves

PLAN OF BANK PROTECTION AT ABUTMENT

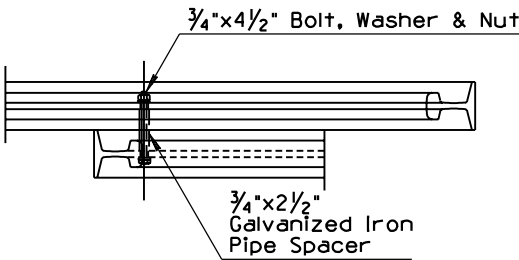


SECTION ON ℄ ROADWAY



TYPICAL SECTION
See Perspective Std Dwg C-17.10

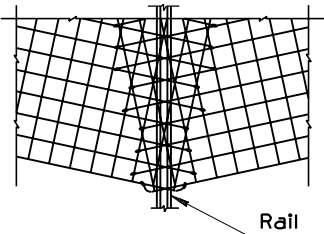
Type Per Plans	x (Ft-In)	Minimum Rail Length (Ft)		Minimum Rail Weight (Lbs/Yd)
		Long Rail	Short Rail	
4	5-0	22	10	50
5	7-6	25	13	50
6	10-0	28	16	50



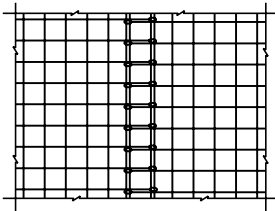
RAIL CONNECTION DETAIL
Burn Holes Through Rails In Field and Bolt Together as Shown

GENERAL NOTES

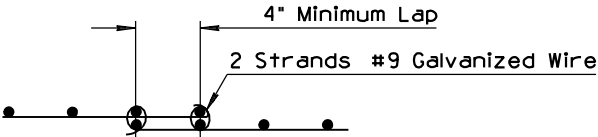
1. Rock shall conform to Section 913-2.01(A) of the Standard Specifications. The rock shall have a minimum nominal diameter no smaller than the mesh opening, and a maximum nominal diameter of 12".
2. All mesh wire, tie wire, cable, bolts, washers and nuts shall be galvanized.
3. When other embankment slope rates are encountered, warp to 1½:1 or 2:1.
4. High survivability filter fabric shall conform to Section 913-2.05 of the Standard Specifications.
5. All wire mesh on a single project shall have the same mesh opening.



ELEVATION AT CHORD POINT ON CURVE



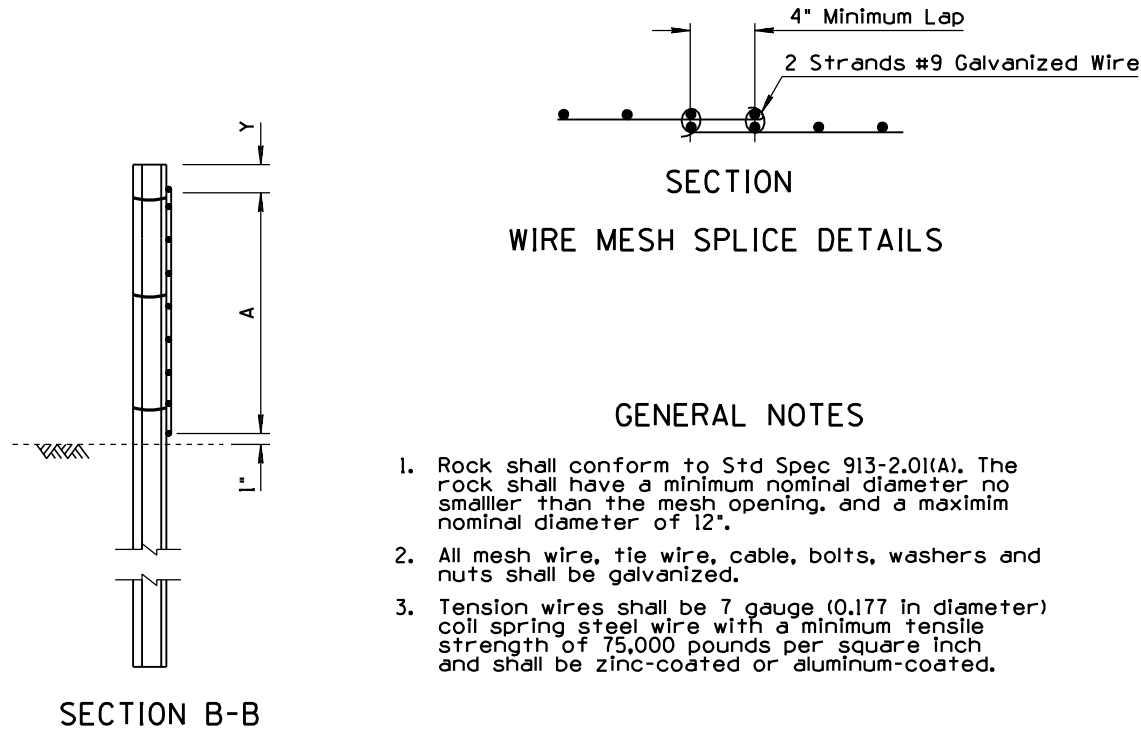
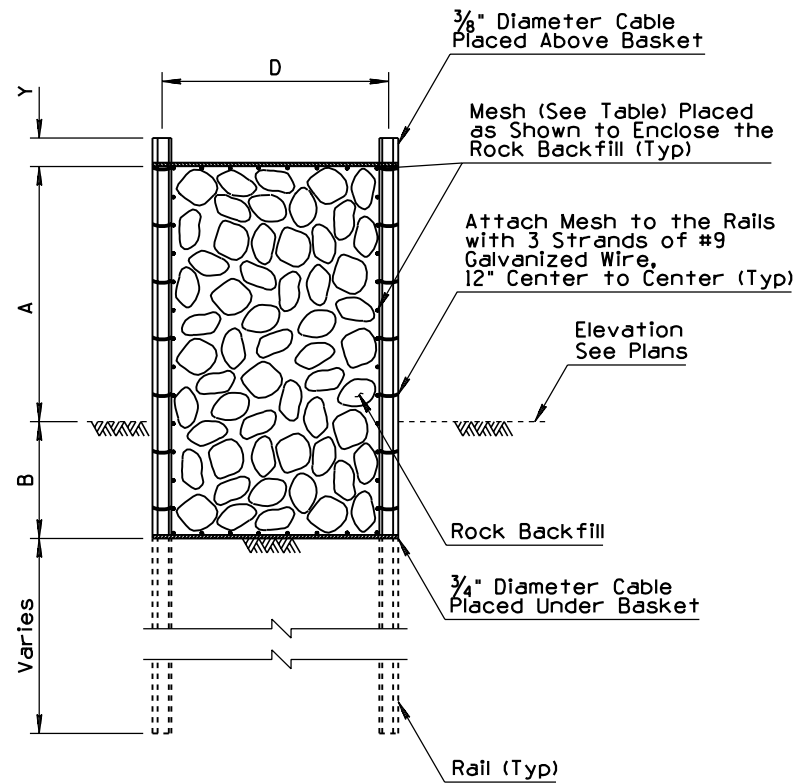
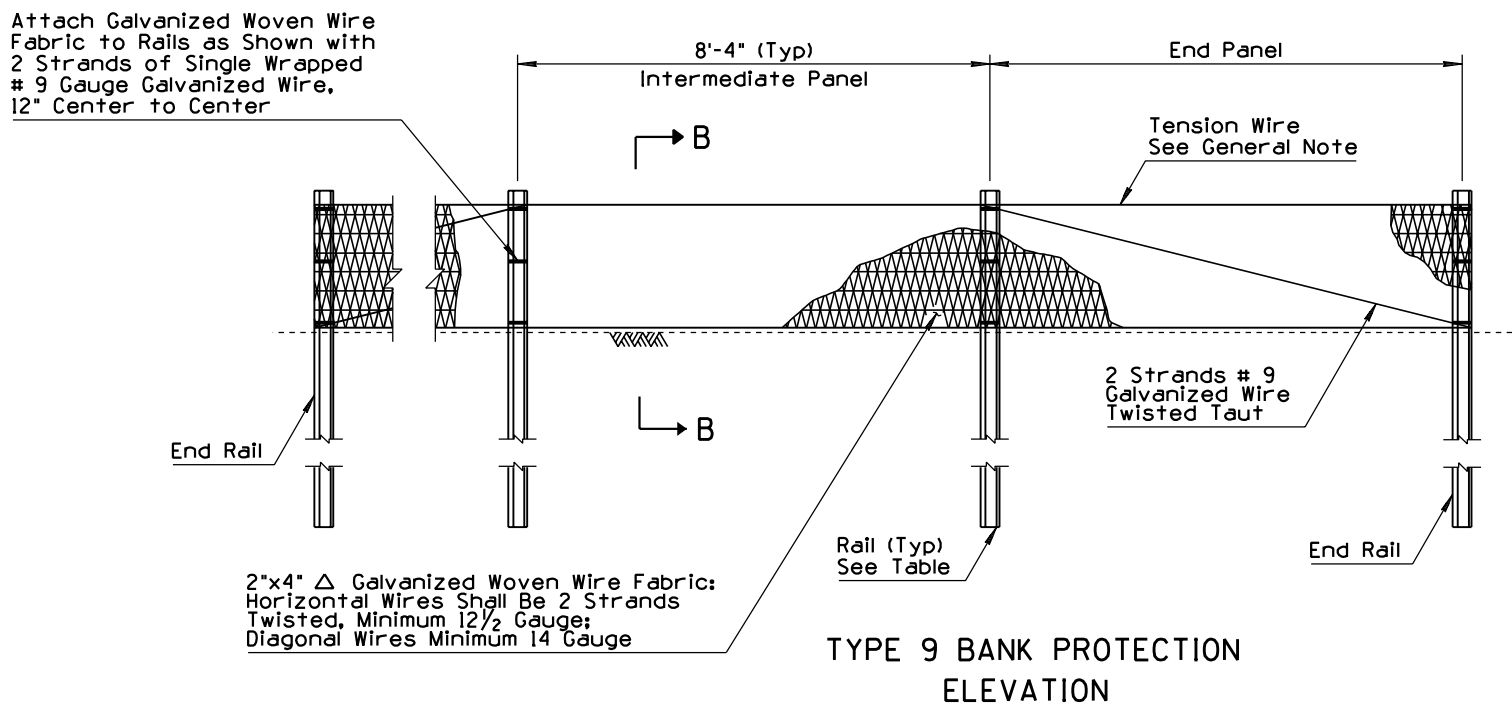
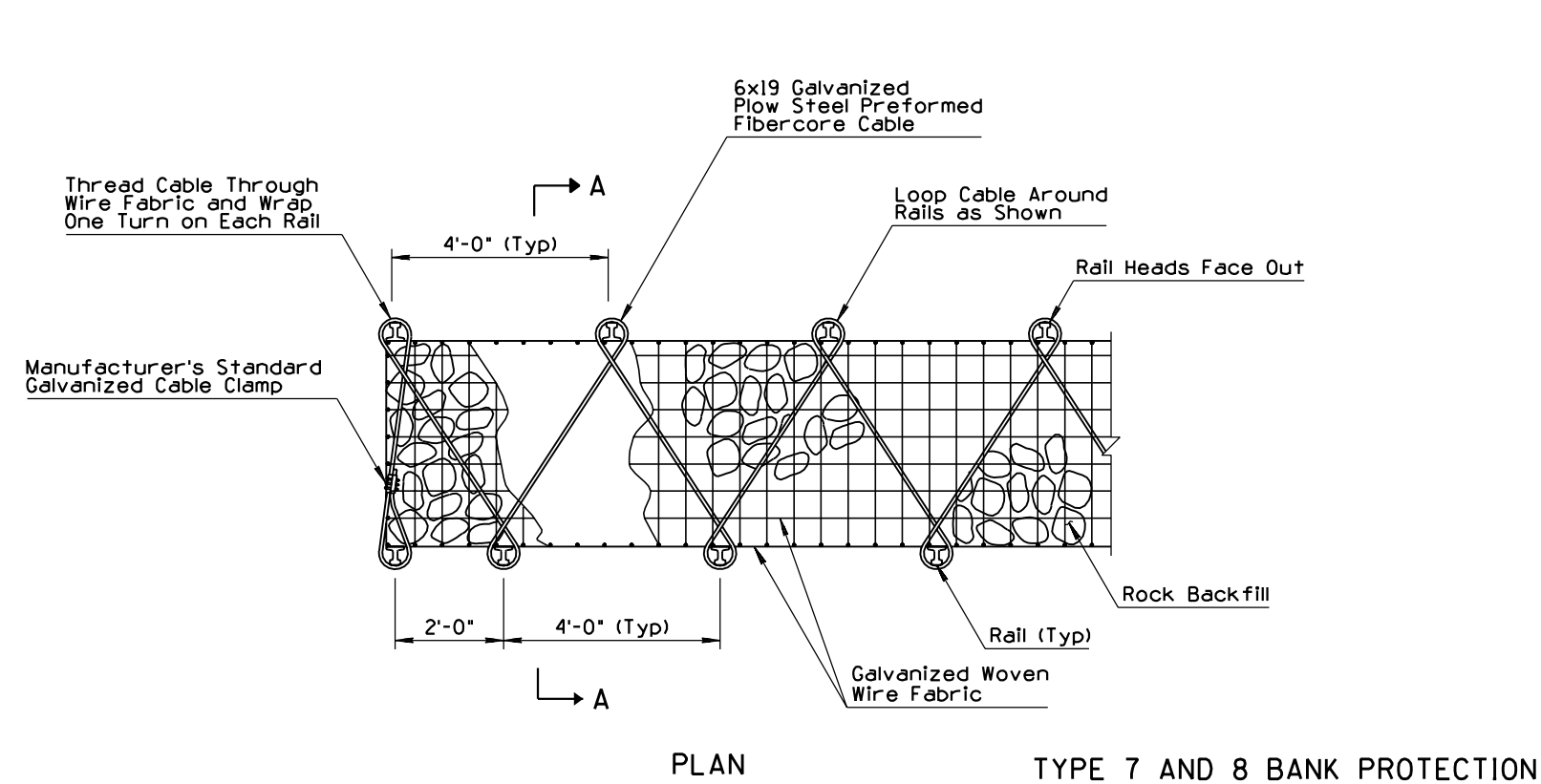
ELEVATION ON STRAIGHT SECTION



SECTION
WIRE MESH SPLICE DETAILS

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>[Signature]</i>	RAIL BANK PROTECTON AT ABUTMENTS TYPES 4, 5 & 6	DRAWING NO. C-17.15

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD	RLF	9/04
2			
3			
4			



- GENERAL NOTES
1. Rock shall conform to Std Spec 913-2.01(A). The rock shall have a minimum nominal diameter no smaller than the mesh opening, and a maximum nominal diameter of 12".
 2. All mesh wire, tie wire, cable, bolts, washers and nuts shall be galvanized.
 3. Tension wires shall be 7 gauge (0.177 in diameter) coil spring steel wire with a minimum tensile strength of 75,000 pounds per square inch and shall be zinc-coated or aluminum-coated.

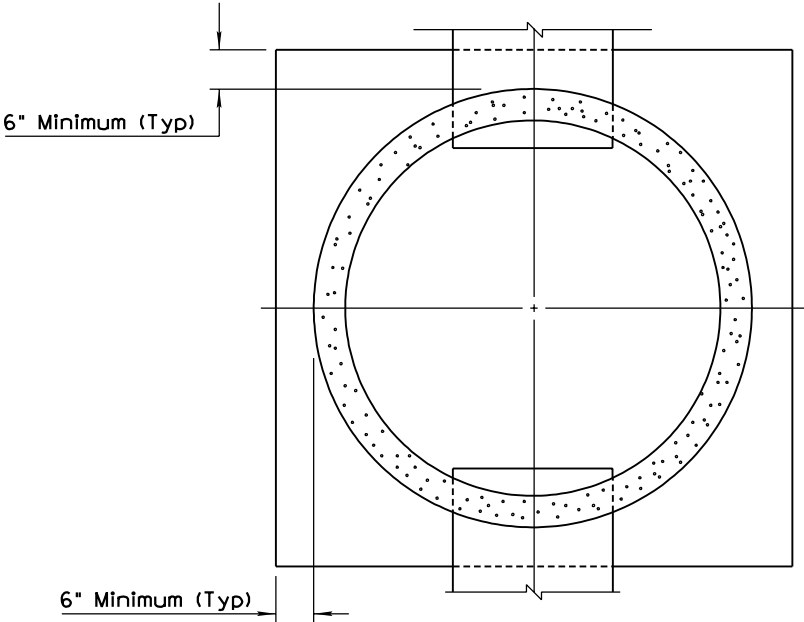
Type	MIN RAIL LENGTH (Ft)	MIN RAIL WT (lbs/Yd)	MESH	A (Ft-In)	B (Ft-In)	D (Ft)	Y (In)
7	15	50	3"x3"-W1.4/W1.4 or 4"x4"-W1.4/W1.4	4 - 0	2 - 0	4	6
8	18	50		7 - 0	3 - 0	5	6
9	10	15	N/A	2 - 2	N/A	N/A	3

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	RAIL BANK PROTECTION FOR DRAINAGEWAYS TYPES 7, 8 & 9	DRAWING NO. C-17.20

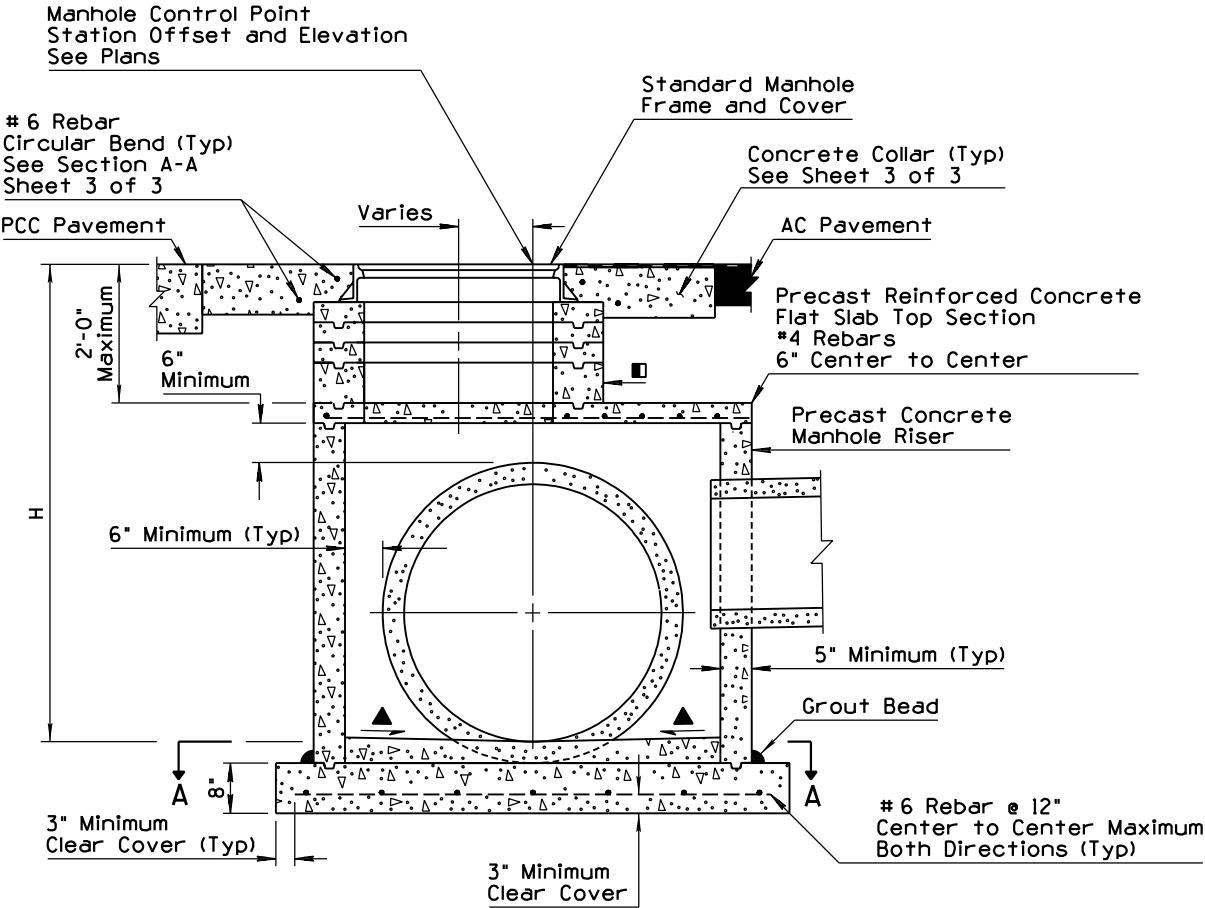
NO.	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-18.40 TO C-18.10, SHEET 1 OF 3	RLF	9/04
2			
3			
4			

GENERAL NOTES

1. Pipe sizes and elevations are shown on plans.
 2. The manhole height, H, shall be measured from the lowest invert elevation to the top of the manhole frame.
 3. Concrete for cast-in-place manholes shall be Class B.
 4. All manholes deeper than 32 inches shall have steps. Manhole steps shall be constructed in accordance with AASHTO M199. Where precast manholes are used, the steps shall be installed at the same time sections are cast.
 5. Per OSHA requirements, special treatments to include landings are required for heights exceeding 30 ft.
 6. Precast manhole sections shall be manufactured in accordance with AASHTO M199, except that the compressive strength of each section shall be determined and accepted in accordance with Std Spec 1006-7.
 7. Manhole location and elevation shall be as shown on plans. See Sheet 1 of 3 for station location reference point.
 8. Backfill compaction shall conform to Std Specs 303-2 and 501.
- 4", 6", 8" or 12" (30" Inside Diameter) Grade Rings
- ▲ 1/4"/ft
- See Sheet 2 of 3

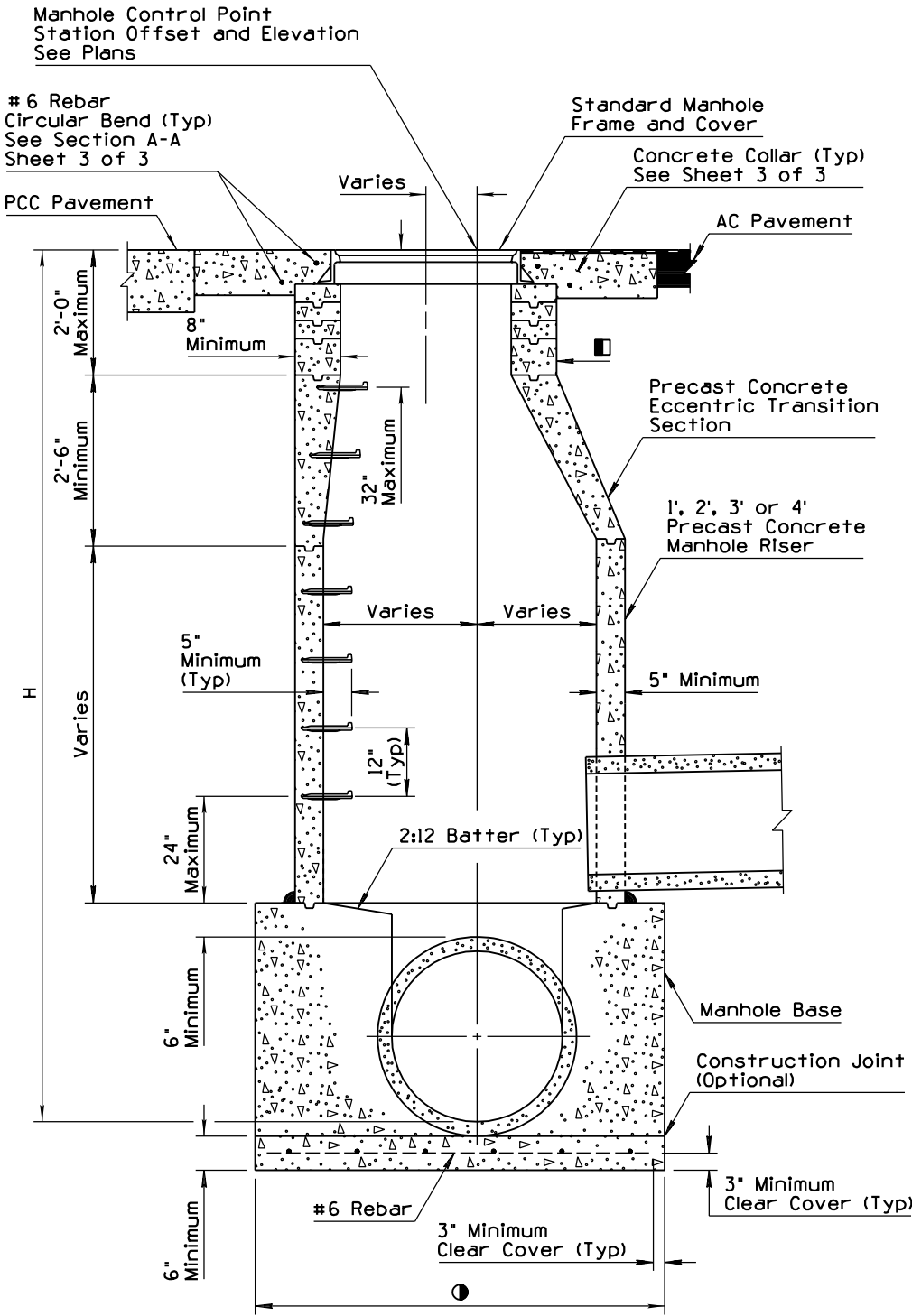


SECTION A-A



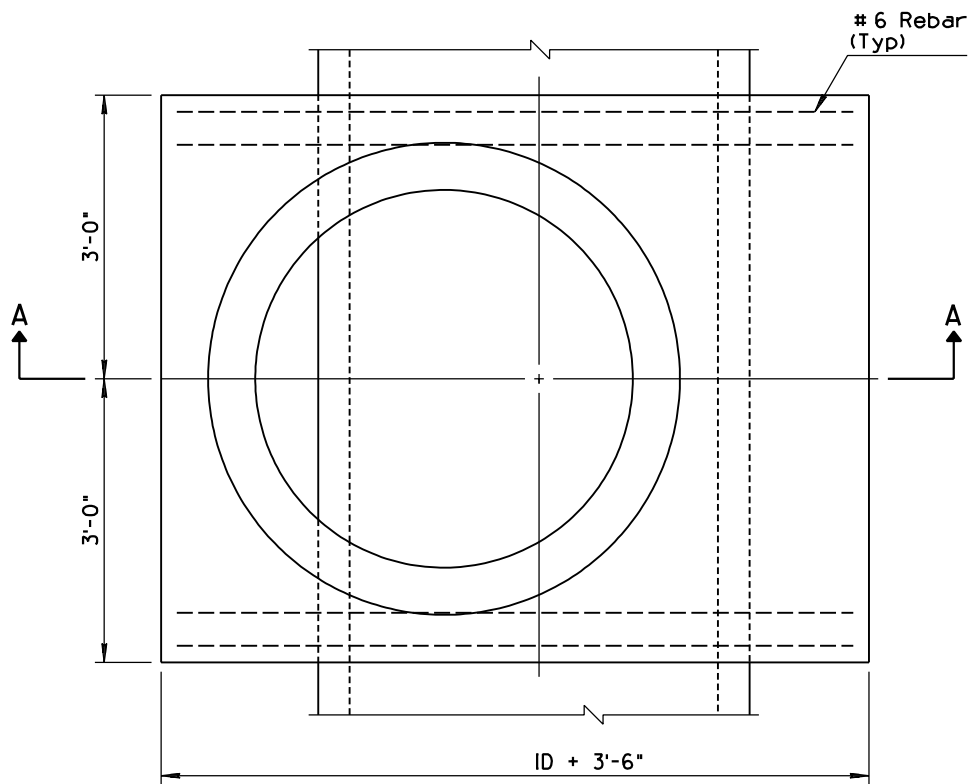
SECTION
SHALLOW INSTALLATION
SLAB BASE

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	MANHOLE RISER DETAILS	DRAWING NO. C-18.10 Sheet 1 of 3

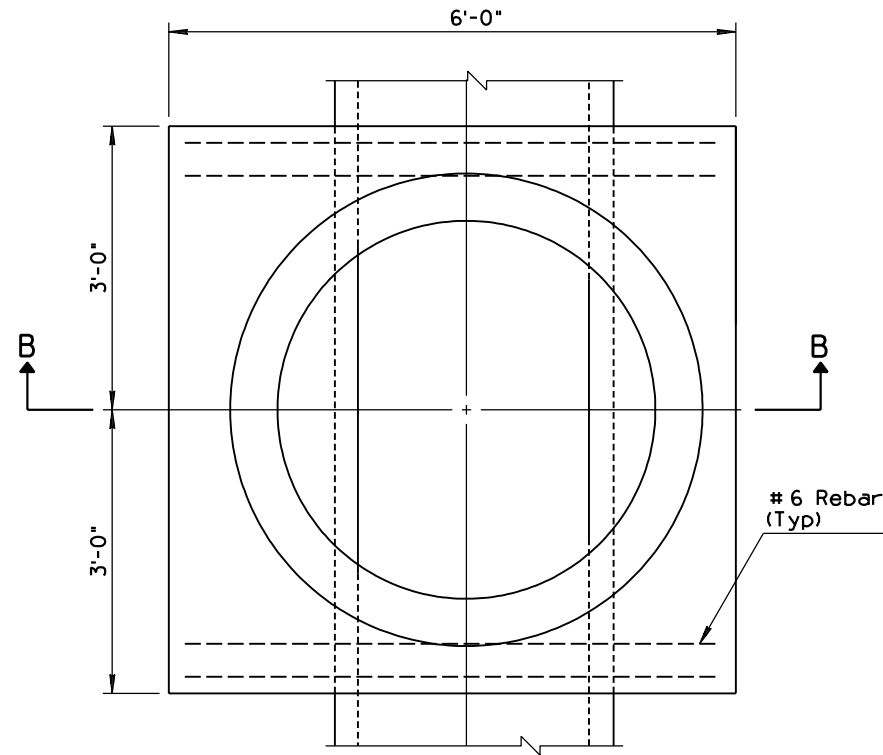


SECTION
NORMAL INSTALLATION
STANDARD BASE

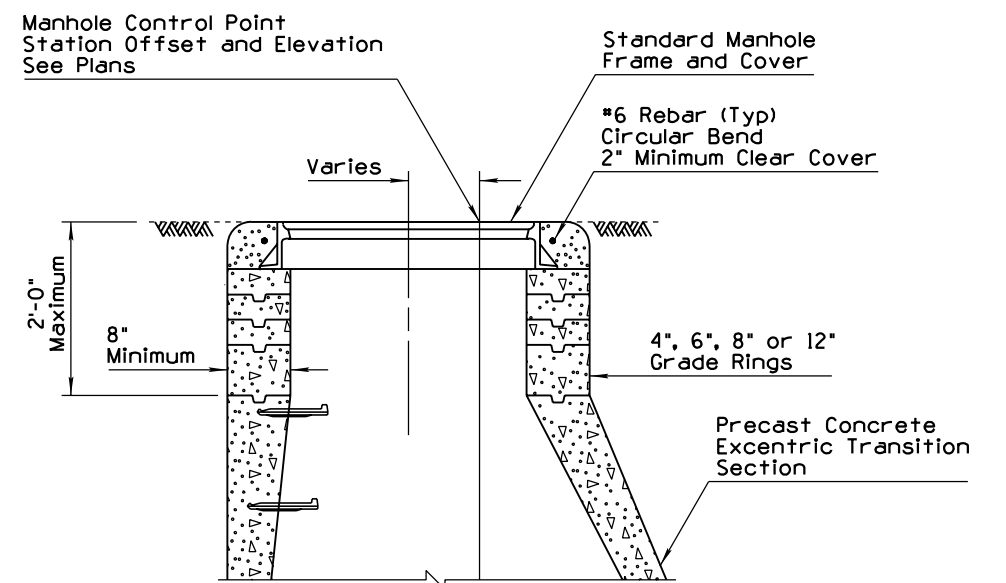
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG TO C-18.10, SHEET 1 OF 3	RLF	9/04
2			
3			
4			



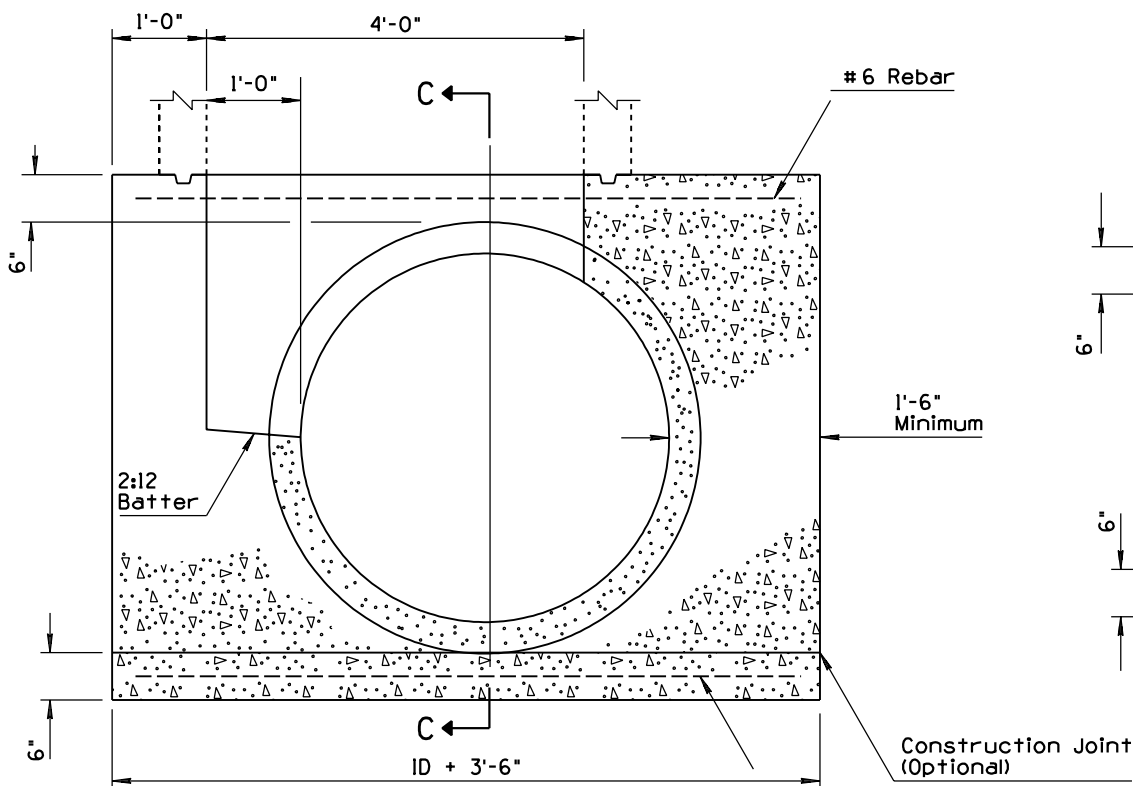
PLAN
FOR PIPES OVER 36" ID



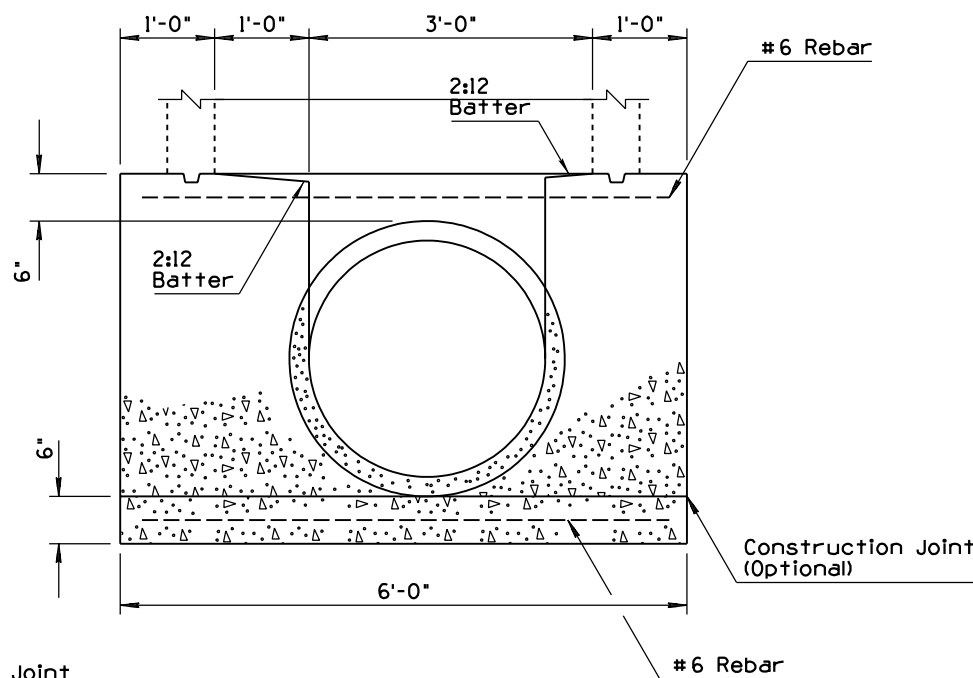
PLAN
FOR PIPES 36" ID AND SMALLER



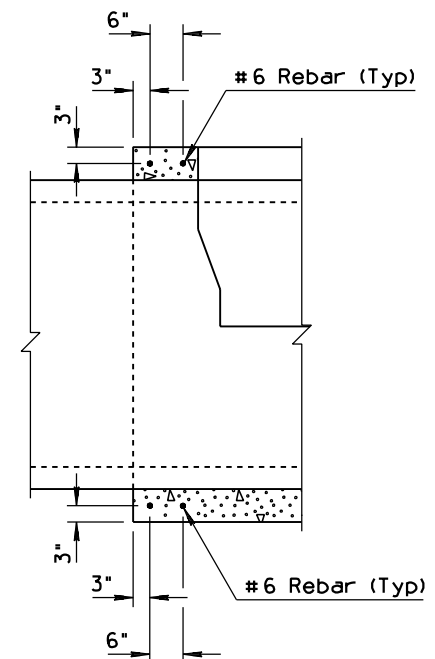
SECTION
RING, FRAME & COVER
NON-PAVEMENT INSTALLATION



SECTION A-A
STANDARD BASE STRUCTURE
FOR PIPES OVER 36" ID



SECTION B-B
STANDARD BASE STRUCTURE
FOR PIPES 24" TO 36" ID



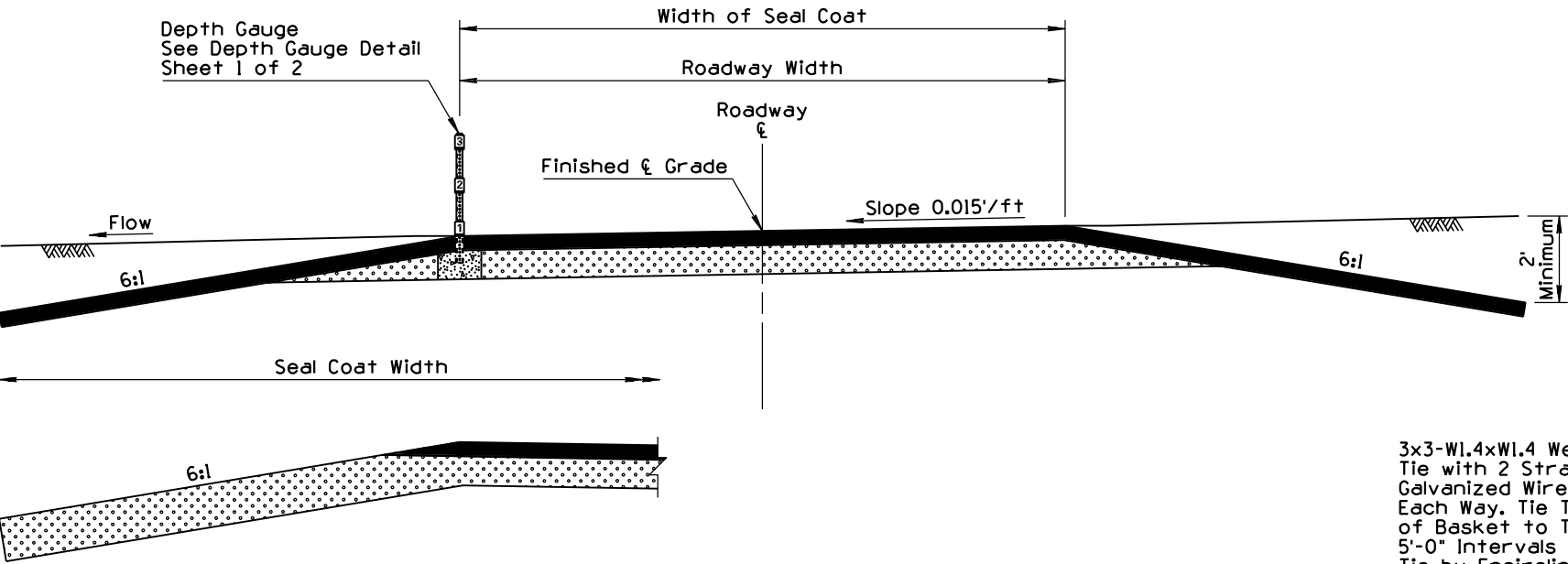
SECTION C-C

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	MANHOLE BASE DETAILS NORMAL INSTALLATION	DRAWING NO. ① C-18.10 Sheet 2 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD AS C-19.10, SHEET 2 OF 2	RLF	9/04
2	DELETED ORIGINAL GENERAL NOTE 4	RLF	9/04
3			
4			

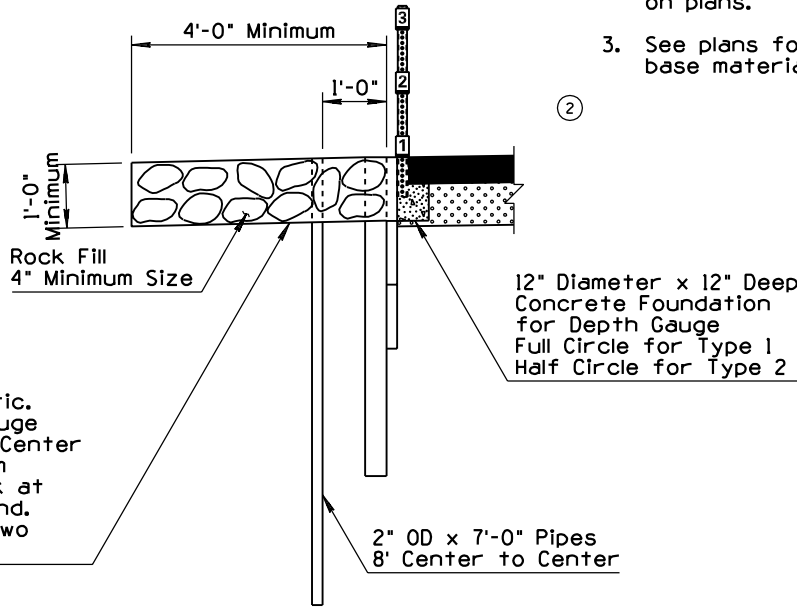
GENERAL NOTES

1. All timber shall be rough, pressure treated and unpainted.
2. Rock basket, full length of structure, shall be included only when called for on plans.
3. See plans for bituminous surface and base material details.

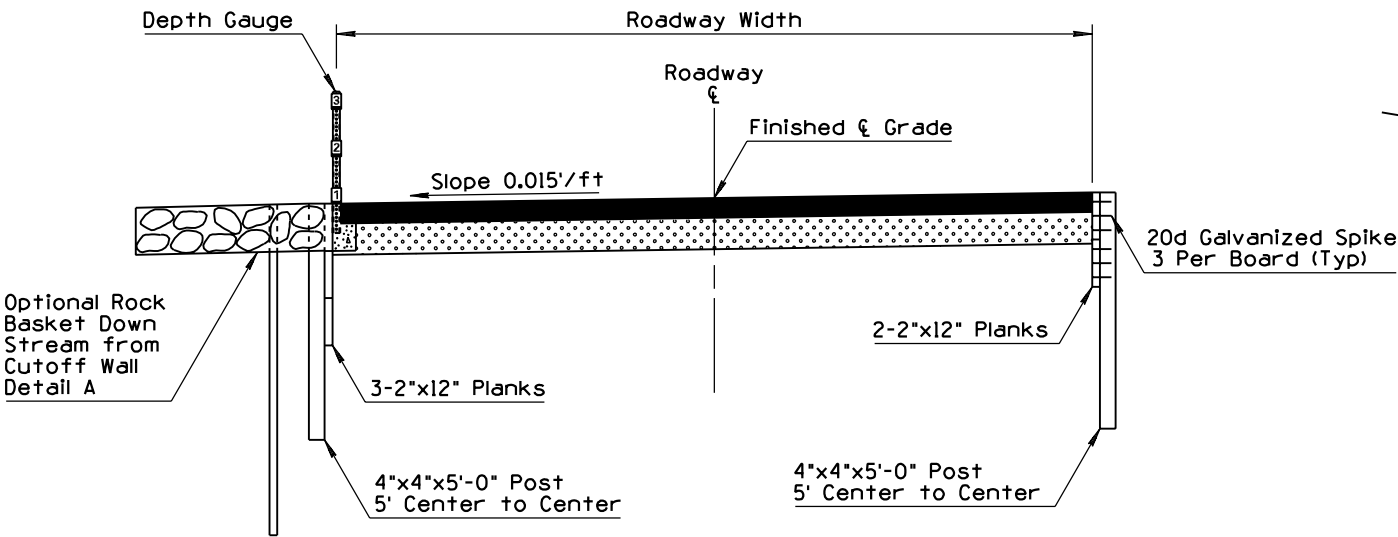


WITH TREATED BASE

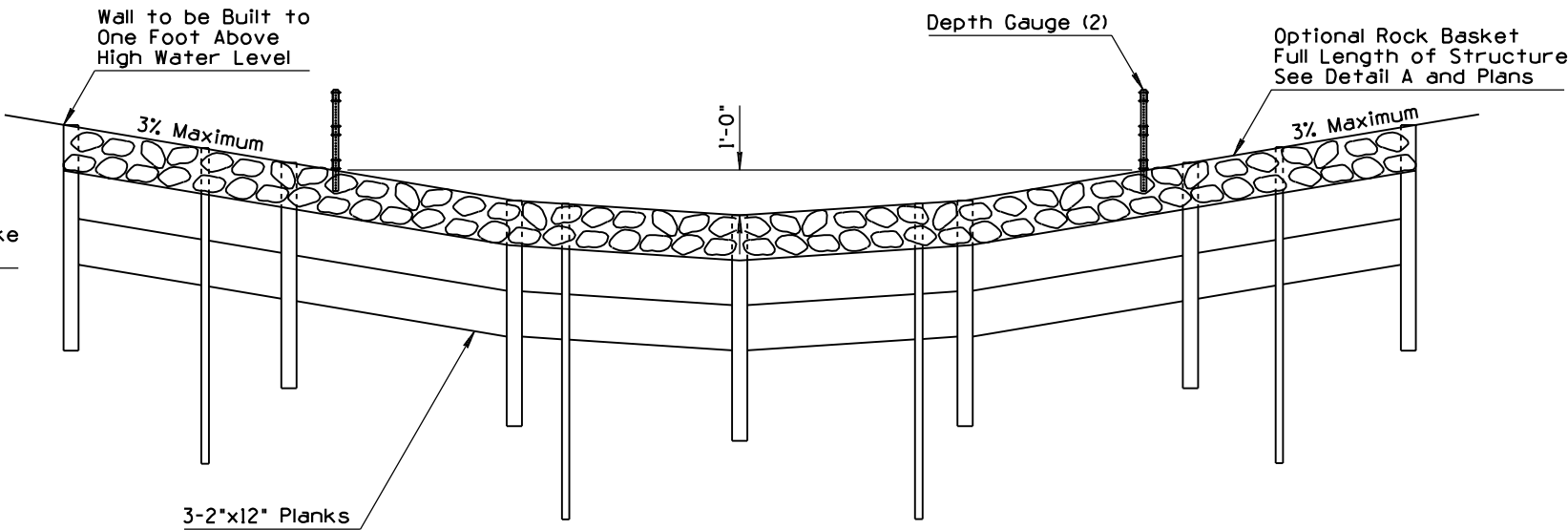
TYPE 1
BITUMINOUS SURFACE ROAD



DETAIL A



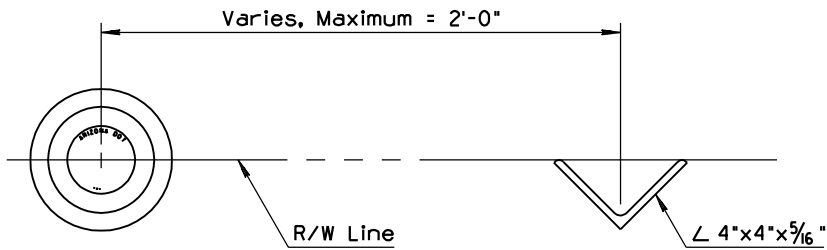
TYPE 2
BITUMINOUS SURFACE FORD
TIMBER CUTOFF WALLS



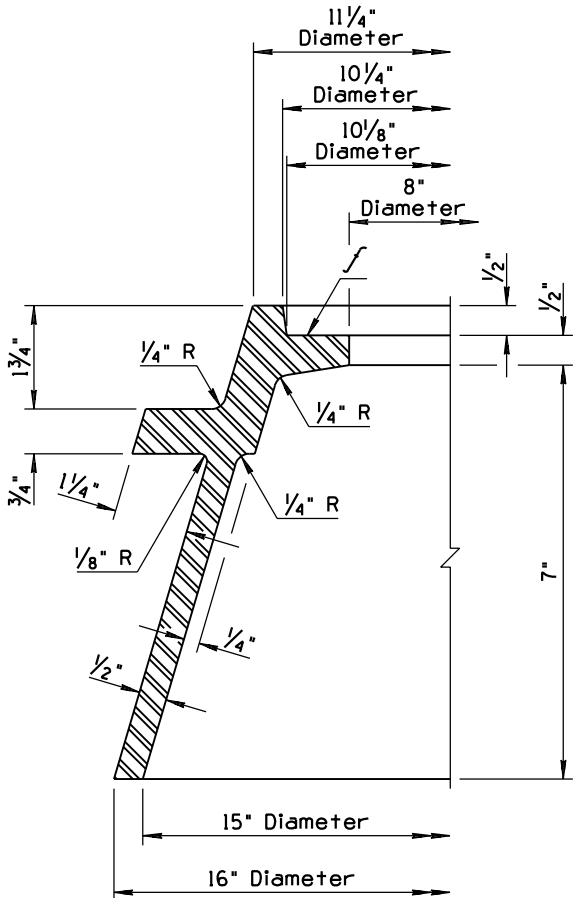
ELEVATION - TYPE 2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FORD TYPES 1 AND 2	DRAWING NO. C-19.10 Sheet 2 of 2

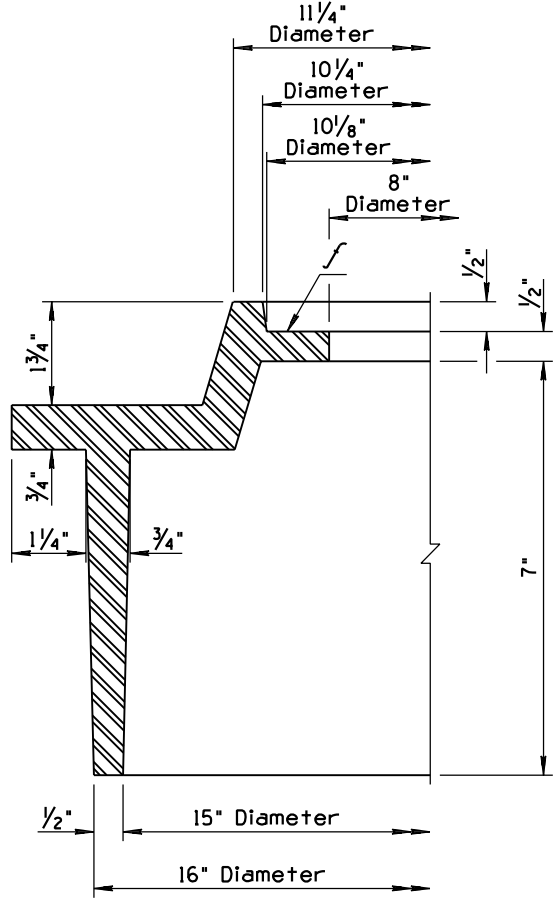
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED REFERENCE MARKER LETTERING	RLF	9/04
2	REVISED DIMENSION	RLF	9/04
3	REVISED GENERAL NOTE 7	RLF	9/04
4	REVISED SHANK	RLF	9/04



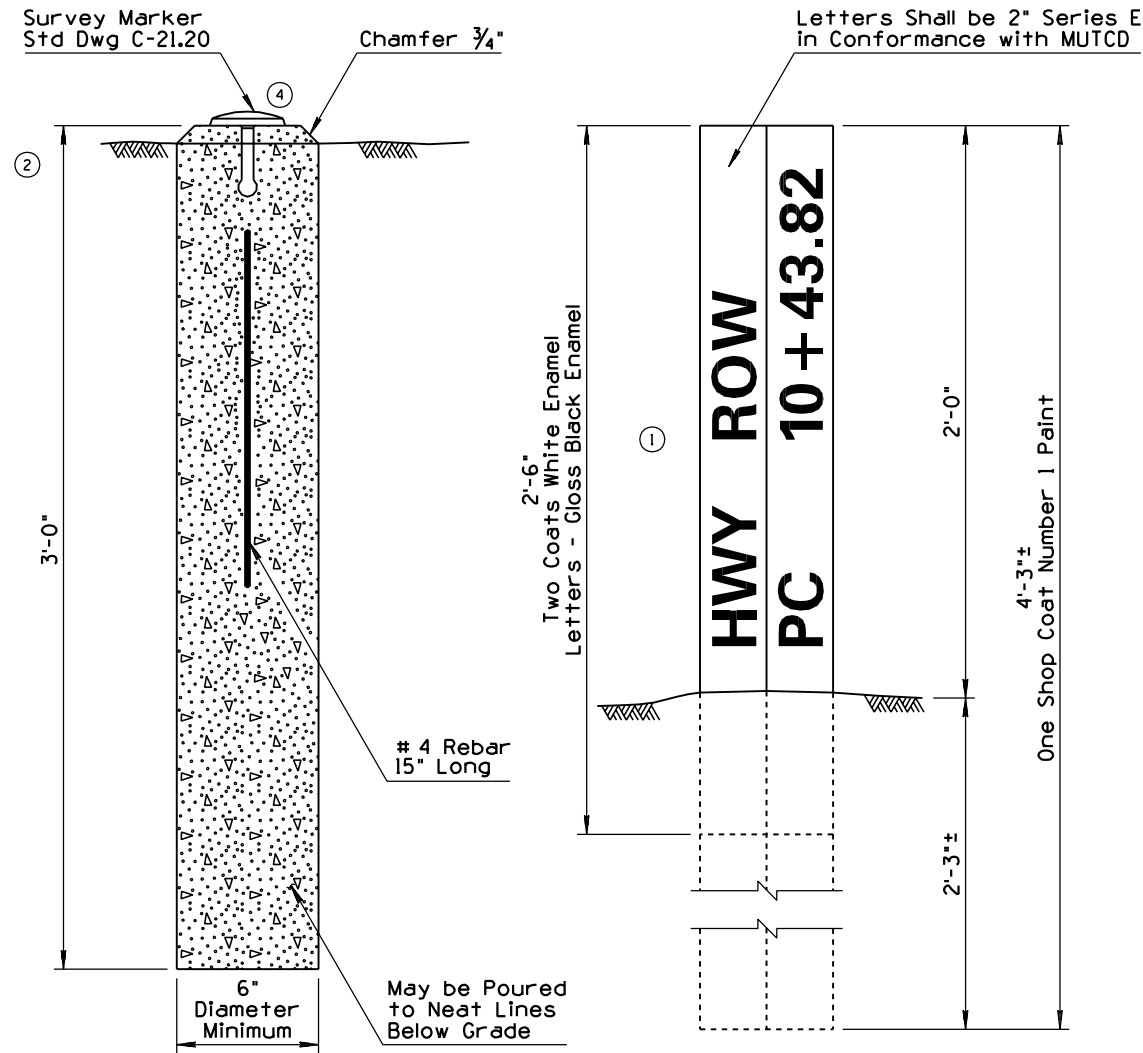
PLAN



FRAME A



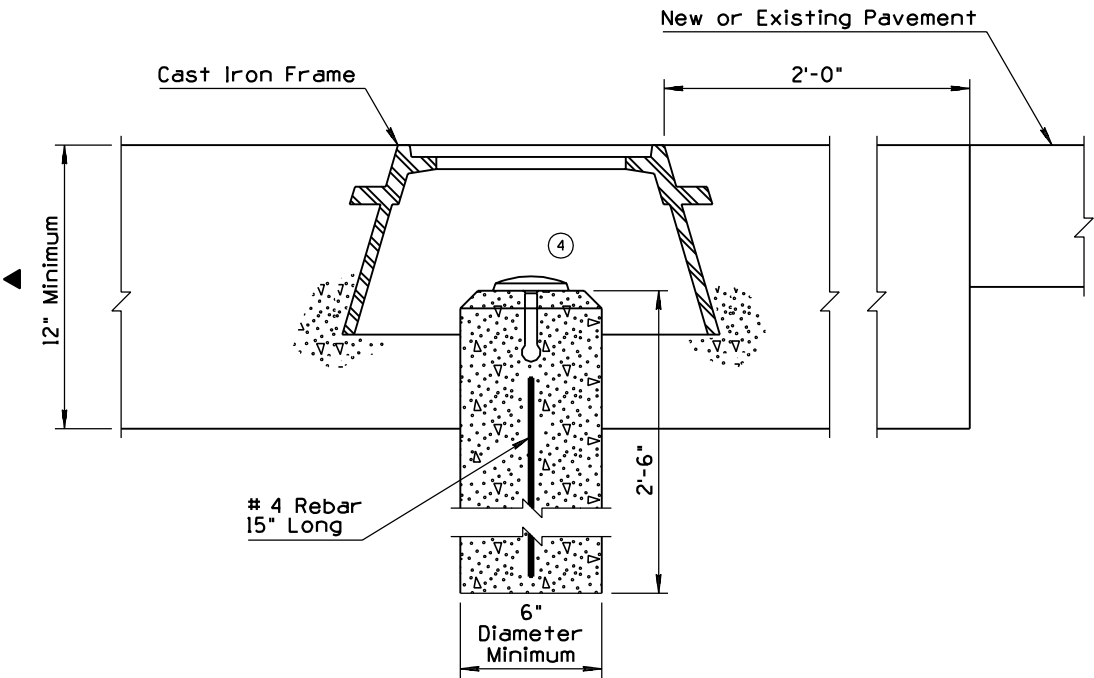
FRAME B



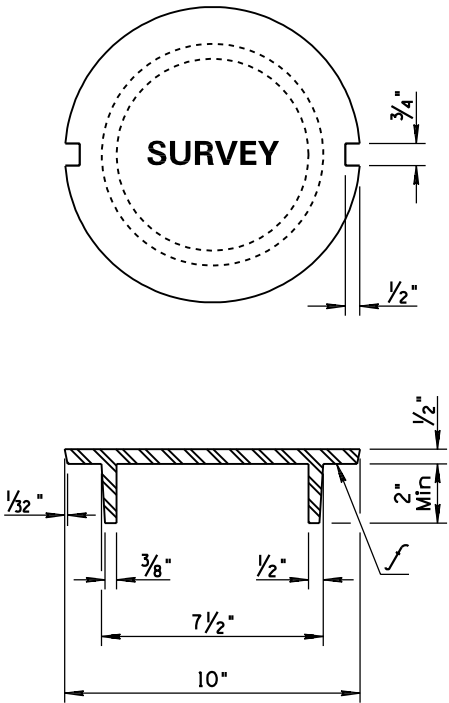
ELEVATION
SURVEY MONUMENT

RIGHT-OF-WAY MARKER

ELEVATION
REFERENCE MARKER



SURVEY MONUMENT
FRAME AND COVER



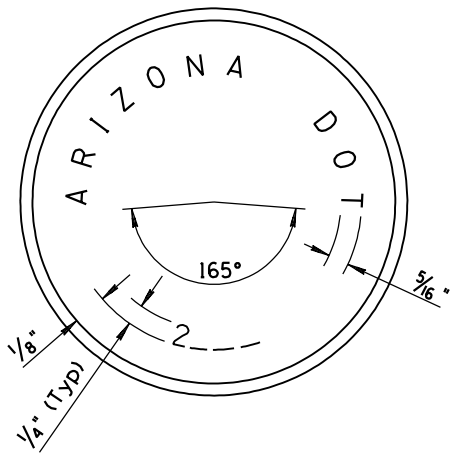
COVER SECTION

GENERAL NOTES

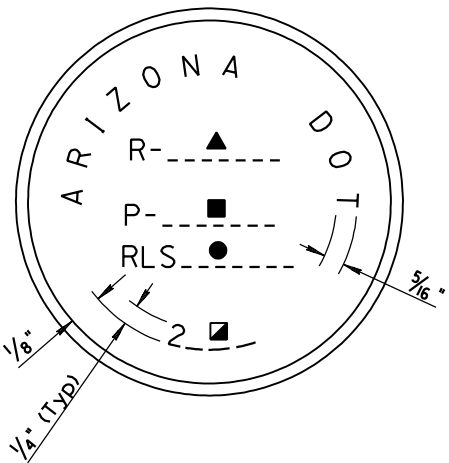
1. A survey monument and frame & cover, complete-in-place, shall be considered a unit.
2. A Right-of-Way marker, consisting of a survey monument and a reference marker, complete-in-place, shall be considered a unit.
3. All markers shall be placed as shown on the plans or as directed by the Engineer.
4. Frames may be either Type A or Type B.
5. Frames shall weigh at least 53 pounds.
6. Covers shall weigh at least 16 pounds.
- ③ 7. Machined portions of the frame and cover are shown by the symbol "f". The allowable tolerance for machined areas is $\pm 1/64$ ". Concrete shall conform to Std Spec 922.
8. Survey monuments shall be magnetically detectable.
- ▲ 12" or pavement structure thickness, whichever is greater.

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SURVEY MONUMENT FRAME AND COVER RIGHT-OF-WAY MARKER	DRAWING NO. C-21.10

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED GENERAL NOTES	RLF	9/04
2	REVISED SHANK DESIGN CRITERIA	RLF	9/04
3	ADDED DETAIL A - RIGHT-OF-WAY MARKER INFORMATION	RLF	9/04
4			

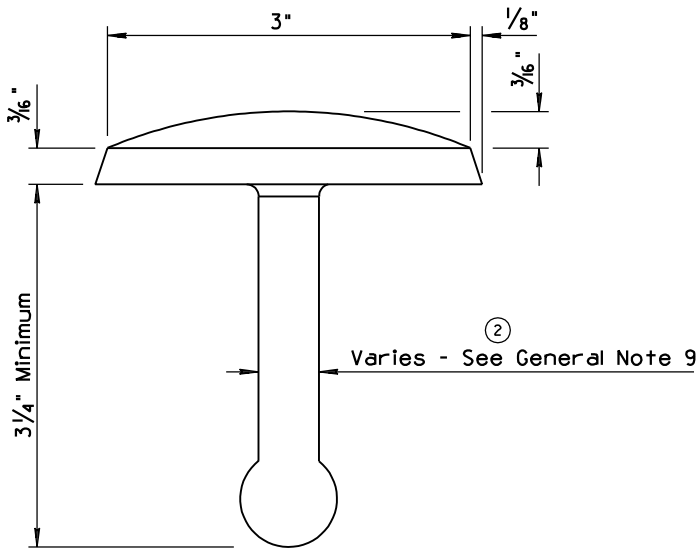


PLAN



DETAIL A
R/W MARKER INFORMATION

3



ELEVATION
SURVEY MARKER

1

GENERAL NOTES

- Survey marker may be used with survey monument, and as bench or R/W markers.
- Survey marker will be furnished by the Department. Cast-in lettering format may vary.
- When used to define section lines, the marker shall be stamped in accordance with the BLM "Manual of Surveying Instructions."
- When used to define R/W not consisting of section lines, the marker shall be stamped in accordance with Detail A, R/W Marker information.
- When used as a R/W marker or to define a section line, the land surveyor's registration number shall be stamped on the marker.
- Bench marks shall be established on headwalls, bridge walls and other permanent structures, as shown on plans or as directed by the Engineer.
- Station, elevation, year, and/or other information shall be hand stamped in field, as approved by the Engineer.
- Survey marker shall be made of brass.
- Shank cross-sectional area shall be a minimum of 0.31 square inches and a maximum of 0.60 square inches. Shank cross-section may vary and is not a critical feature of this standard.
- Shank geometry shall provide for secure anchorage in concrete.
- Text shall not obscure survey point.

- ▲ Right-Of-Way plan number
- Point Number
- Registered Land Surveyor Number - see General Note 5
- ☐ Year

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SURVEY MARKER	DRAWING NO. C-21.20

CONSTRUCTION STANDARD DRAWINGS - INDEX

DRAWING NO.	TITLE	DRAWING NO.	TITLE
C-01.10	SYMBOL LEGEND (4 SHEETS)	C-10.00	GUARDRAIL MEASUREMENT LIMITS
C-01.30	GENERAL ABBREVIATIONS (3 SHEETS)	C-10.01	GUARDRAIL INSTALLATION, TYPE A AND REFLECTOR TAB
		C-10.02	GUARDRAIL INSTALLATION, TYPE B AND REFLECTOR TAB
C-02.10	SLOPES, DIVIDED HIGHWAYS	C-10.03	W-BEAM GUARDRAIL, G4(1W) AND G4(2W), BLOCKED-OUT TIMBER POST
C-02.20	SLOPES, PRIMARY ROADWAYS	C-10.04	W-BEAM GUARDRAIL, G4(1S), BLOCKED-OUT STEEL POST
C-02.30	SLOPES, SECONDARY/MISC ROADWAYS	C-10.05	W-BEAM GUARDRAIL, G4(MODIFIED), WITH FREEWAY CURB & GUTTER (2 SHEETS)
		C-10.06	W-BEAM GUARDRAIL, NESTED (2 SHEETS)
C-03.10	DITCHES, CHANNELS, DIKES AND BERMS (5 SHEETS)	C-10.07	W-BEAM GUARDRAIL, BOLTED ANCHOR (2 SHEETS)
		C-10.08	W-BEAM GUARDRAIL, END ANCHOR
C-04.10	SPILLWAY, EMBANKMENT	C-10.20	THRIE-BEAM GUARDRAIL, G9, BLOCKED-OUT STEEL POST
C-04.20	DOWNDRAIN, EMBANKMENT	C-10.30	GUARDRAIL TRANSITION, THRIE BEAM TO CONCRETE HALF-BARRIER, 32" TYPE 'F', (APPROACH), AC PAVEMENT
C-04.30	SPILLWAY LENGTH TABLE	C-10.31	GUARDRAIL TRANSITION, THRIE BEAM TO CONCRETE HALF-BARRIER, 32" TYPE 'F', (APPROACH), PCCP
C-04.40	DOWNDRAIN LENGTH TABLE	C-10.32	GUARDRAIL TRANSITION, W-BEAM TO CONCRETE HALF-BARRIER, 32" TYPE 'F', (DEPARTURE)
C-04.50	DOWNDRAIN ENERGY DISSIPATOR	C-10.40	CONCRETE MEDIAN BARRIER, 32" TYPE 'F', CAST-IN-PLACE
		C-10.41	CONCRETE MEDIAN BARRIER, 42" TYPE 'F', CAST-IN-PLACE
C-05.10	CURB & GUTTER, CURB, AND GUTTER	C-10.42	GLARE SCREEN, CONCRETE MEDIAN BARRIER (3 SHEETS)
C-05.12	CURB & GUTTER TRANSITIONS (3 SHEETS)	C-10.50	CONCRETE HALF BARRIER, 32" TYPE 'F' (2 SHEETS)
C-05.20	CONCRETE DRIVEWAYS & SIDEWALKS (2 SHEETS)	C-10.51	CONCRETE HALF BARRIER, 32" TYPE 'F', WITH SIDEWALK
C-05.30	SIDEWALK RAMP (7 SHEETS)	C-10.52	CONCRETE HALF BARRIER, 32" TYPE 'F', WITH GUTTER
C-05.40	MEDIAN PAVING AND NOSE TAPER	C-10.53	CONCRETE HALF BARRIER, 42" TYPE 'F', WITH GUTTER
C-05.50	CONCRETE BUS BAY	C-10.54	CONCRETE HALF BARRIER, 32" TYPE 'F' AT PIERS (3 SHEETS)
		C-10.55	CONCRETE HALF BARRIER, 42" TYPE 'F' AT PIERS (3 SHEETS)
C-06.10	DRIVEWAY & TURNOUT LAYOUTS (2 SHEETS)	C-10.70	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CAISSONS (3 SHEETS)
		C-10.71	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CURB & GUTTER (2 SHEETS)
C-07.01	PCCP JOINTS (2 SHEETS)	C-10.72	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH CAISSONS (3 SHEETS)
C-07.02	LOAD TRANSFER DOWEL ASSEMBLY	C-10.73	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH GUTTER (2 SHEETS)
C-07.03	PCCP JOINT LOCATIONS, MAINLINE (8 SHEETS)	C-10.74	CONCRETE HALF-BARRIER TRANSITION, 42" TO 32" TYPE 'F'
C-07.04	PCCP JOINT LOCATIONS, RAMPS & CROSSROADS (5 SHEETS)	C-10.75	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' TANGENT DEPARTURE (2 SHEETS)
		C-10.76	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' AT RADIUS, 32" TO 0"
C-08.20	PAVED GORE AREA	C-10.77	CONCRETE HALF-BARRIER TRANSITION, END TERMINAL, CURB AND GUTTER
		C-11.10	ROADWAY CATTLE GUARD (3 SHEETS) (STANDARD DRAWING TEMPORARILY SUSPENDED - USE STANDARD DETAIL X-1110)
		C-11.20	CATTLE GUARD, DRAINAGE
		C-12.10	FENCE, WOVEN AND BARBED WIRE WITH GATES (5 SHEETS)
		C-12.20	FENCE, CHAIN LINK TYPES 1 AND 2 WITH GATES (3 SHEETS)
		C-12.30	FENCE, CHAIN LINK CABLE BARRIER (3 SHEETS)

CONSTRUCTION STANDARD DRAWINGS - INDEX

DRAWING NO.	TITLE	DRAWING NO.	TITLE
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C-13.15	TYPICAL PIPE INSTALLATION	C-19.10	FORD, CONCRETE WALLS (2 SHEETS)
C-13.20	PIPE, REINFORCED CONCRETE END SECTION	C-21.10	SURVEY MONUMENT, FRAME AND COVER, RIGHT-OF-WAY MARKER
C-13.25	PIPE, CORRUGATED METAL END SECTION	C-21.20	SURVEY MARKER
C-13.30	PIPE AND PIPE ARCH, CORRUGATED METAL CONCRETE INVERT PAVING		
C-13.55	PIPE, CATTLE-VEHICLE PASS, MITERED END TREATMENT		
C-13.60	SLOTTED DRAIN DETAILS		
C-13.65	SLOTTED DRAIN, INSTALLATION DETAILS		
C-13.70	STORM DRAIN, CONNECTION DETAILS		
C-13.75	STORM DRAIN, OUTLET BARRIER GATE		
C-13.76	STORM DRAIN OUTLET AND STORM DRAIN PLUG		
C-13.80	PIPE COLLAR DETAILS		
C-15.10	CATCH BASIN, TYPE 1		
C-15.20	CATCH BASIN, TYPE 3 (3 SHEETS)		
C-15.30	CATCH BASIN, TYPE 4		
C-15.40	CATCH BASIN, TYPE 5 (2 SHEETS)		
C-15.50	CATCH BASIN, FRAME AND GRATE		
C-15.70	CATCH BASIN, MISCELLANEOUS DETAILS (2 SHEETS)		
C-15.75	CATCH BASIN, DROP INLET		
C-15.80	CATCH BASIN, FLUSH		
C-15.81	CATCH BASIN, SIDE SLOPE		
C-15.90	CATCH BASIN, MEDIAN DIKE (PRECAST)		
C-15.91	FREEWAY CATCH BASIN DETAILS (2 SHEETS)		
C-15.92	CATCH BASIN WITH CONCRETE HALF BARRIER, TYPE 'F'		
C-16.40	IRRIGATION SLEEVES		
C-17.10	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 1, 2 & 3		
C-17.15	RAIL BANK PROTECTION AT ABUTMENTS, TYPES 4, 5 & 6		
C-17.20	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 7, 8 & 9		